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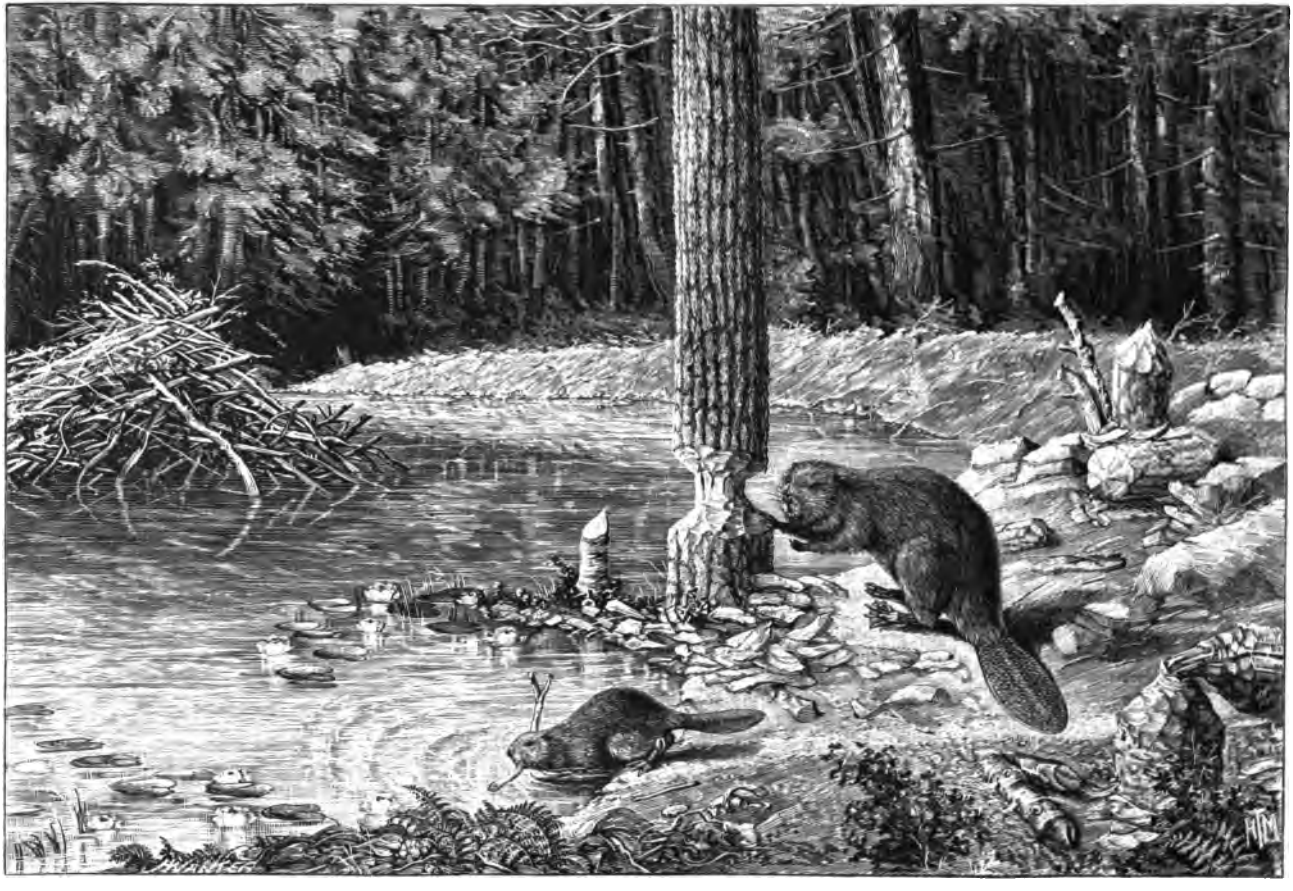
JOHN READE.



A SCENE IN THE LAURENTIDES.

CASTOROLOGIA

OR THE

HISTORY AND TRADITIONS

OF THE

CANADIAN BEAVER.

BY

HORACE T. MARTIN, F.Z.S.,&c.

AN EXHAUSTIVE MONOGRAPH, POPULARLY WRITTEN

AND

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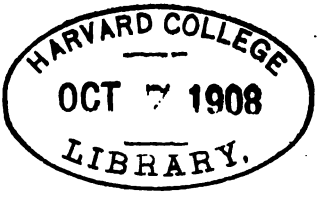

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DEDICATED

TO

SIR J. WM. DAWSON, LL.D., F.R.S., &c.

IN GRATEFUL RECOGNITION

OF HIS SERVICES

TO STUDENTS

OF

CANADIAN NATURAL HISTORY.

PREFACE.

A TRADITIONAL knowledge of the beaver is the birthright of every Canadian; yet, as in most cases where tradition alone is relied on, this knowledge is chiefly remarkable for its divergence from facts. As the acorn, falling on favorable soil, sends forth the slender shoot, which time and circumstance may model into a grotesque fetish for minds ignorant, or forgetful of the simplicity of its origin; so, the facts of science, if nurtured by tradition, soon lose shape, and multitudes venerate the fabulous stories of dragon or beaver, with total disregard to outraged reason. Iconoclasm must, therefore, do its work, distasteful as its spirit may be; for rather should we add, than take away one tittle of our nation's lore; but such statements as cannot stand the search-light test of truth, must rank as fable; and while our story may lose some of its glamour when studied rationally, we surely do not need the chimerical to arouse our interest.

Canada has been known for nearly three centuries as "the home of the beaver," and for over two hundred years this animal contributed to Canada's most substantial advancement: inspiring adventures, stimulating enterprize, and laying the strong foundations of our commercial development. Thus has the beaver played its part in the romance of our early history; the central figure around which waged the wars of nations, while powerful corpo-

rations and petty adventurers fought for monopolies few were able to control.

The history of the beaver in Great Britain, has been concisely recorded by J. E. Harting; while an extensive volume, the work of Morgan and Ely, treats of the beaver in the United States. Conspicuous for original contributions on the Canadian beaver, we recognize Cartwright, in Labrador; Hardy, in New Brunswick; Venner, in Quebec; Wilson, in Ontario; and Green, in the Far West; but all these are eclipsed by Samuel Hearne, the Hudson's Bay explorer and writer, whose observations will be worth, for all time, *verbatim* copy. Dr. Richardson's monumental tome, though written half a century later, scarcely extends in the least our knowledge of this subject.

To trace the tangled threads of the earlier chronicles, and to produce a worthy fabric, requires for every strand a mind peculiar to the theme—the patience and keen observance of the Antiquary —the genius of the Historian—the broad knowledge of the Biologist —all these at least, and with these, the general love for the study of Nature. This last has been my slender equipment, but I have easily enlisted sympathetic help from members of the Antiquarian Society, the Society for Historical Studies, and the Natural History Society of Montreal. To the Hon. Edward Murphy and to Mr. P. S. Murphy I am indebted for antiquarian notes; for the elucidation of many historical problems my thanks are due to Mr. Henry Mott and Mr. Gerald E. Hart; while for many kind and valuable services I am deeply grateful to Sir J. Wm. Dawson. Among my correspondents many have evinced a practical interest, and I am proud to acknowledge many items from the fluent pen of Mr. J. M. LeMoine. During my sojourns abroad I received most friendly assistance, and acknowledge my obligations to Mr. T. F. Moore, Derby Museum, Liverpool; Mr. Chas. N. Read, Brit. Mus. (Ethnography); Mr. Oldfield Thomas and Mr. A. Smith Woodward, Brit. Mus. (Natural History); Mr. A. D. Bartlett, Regents Park Gardens; and Mr. P. A. Sclater, Sec'y. Zool. Society, London; who made available to me the privileges of those

magnificent institutions. My numerous reading and thinking friends have, with a marvellous patience, endured these many years my demands for informations, and indeed their sympathy has been my greatest encouragement.

I wish also to express my thanks to the publishers, who have so generously undertaken the responsibility of bringing before the public this, my initial volume; thereby preserving those traditions which make our great Dominion proud to own as its national totem, "the beaver."

HORACE T. MARTIN.

MONTREAL, *February, 1892.*

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INTRODUCTION.

SALUTATION FROM THE KING OF BEAVERS.

By George Martin.

"Welcome to the kindly home
Where we shape the wattled dome,
Where, in moonlight's silver calm,
My faithful subjects build the dam;
The land whose maple leaf conveys
A prophecy of sweetened days.

. . . . .

We're grateful for the honor given
To beaverhood, since nearer heaven
This great Dominion raised our name,
Emblazoned on the scroll of fame;
A choice that to the world attests
The base on which its greatness rests,
Our one transcendent, special gift:—
Persistency of honest thrift."

INTRODUCTION.

CANADA offers to the naturalist an exceptional invitation, in her grand possessions of primeval forest, trackless prairie, mountain ranges, lakes and rivers. Nature's domain is, however, so vast, that the mind is perplexed with the endless beauty of the panorama, and instead of boldly pressing on nature, for the unfolding of her secrets, the observer pauses before the great chain of interdependent phenomena. The subject as a whole, being beyond the grasp of most minds, contentment will be found in selecting a minor feature, and devoting to it close study.

The early adventurers in the New World met with many novelties and the interest manifested in these discoveries called forth accounts concerning them. Though the temptation to startle the Old World readers by fabulous tales, was frequently yielded to, all the early records are valuable, as containing the germs of our current traditions.

The discovery of the Canadian Beaver was coincident with the discovery of Canada. From the earliest days, the animal was recognized as of great importance to Canada, and this association has given her the beaver as a national symbol. The name of the Indian village, Hochelaga, visited by Jacques Cartier in 1536, is an Algonquin word, signifying "beaver-meadows," and as colonies of beavers were not unusually found in the immediate vicinity of the Indian

settlements, we may reasonably infer that much of the present site of the city of Montreal, was then occupied by them.

It was not, however, till the establishing of the fur-trading post at Quebec in 1604, and at Montreal in 1611, that the commercial importance was taken advantage of, and the destruction of the beaver hosts began. Though the beaver trade of Canada soon assumed proportions commanding the attention of Parliament, it

FIGURE OF A BEAVER FROM THE EARLIEST KNOWN MONOGRAPH—1685.

was two centuries later, before science manifested any interest. In 1820, Kuhl published a description of a Canadian beaver, then in the British Museum, and named it *Castor Canadensis*, thus creating a specific name in contradistinction to *Castor Europæus*, the European beaver. In size the creatures were much alike; in color the European was not so dark, but no difference of any moment was detected, till, in 1825, Frederick Cuvier pointed out a difference in the skulls, which has since been recognized as establishing the species. Kuhl's, being the first distinctive name published to science, by the rules of

scientific nomenclature takes precedence, hence we have, fixed beyond dispute, the scientific binomen, *Castor Canadensis*, giving the popular form, the Canadian beaver.

The European beaver had formerly been widely spread over the Old World, and it had earned a conspicuous place in the thoughts of men, as early as the days of Heredotus, 420 to 480, B.C. The Greeks called it Castor, from *gastro*—the stomach, having reference to the appearance of the animal; while in Latin, we find many records of it under the names, "fibre," "fiber" and "fibir;" corrupted from *fibrum*, and signifying that the animal dwelt on the banks or edges of the rivers and streams. There is also a Latin form, "beber," with which there is evident connection in the German "biber," the old French "beavre," and the Anglo-Saxon "beofer," "befer," and "beaver." As the determining of scientific names rests absolutely on the rule of priority, regardless of correctness or suitability, many gross anomalies occur; but in the present case no alteration or improvement could be wished for, as the scientific name admits of translation into terms fairly descriptive of the creature and its habits.

With this general introduction, enquiry may now be made regarding the antecedents of the beaver, and though the Old World records date very early, the traditions of the North American Indians, which associate the beaver with the creation of the world, merit first consideration.

Arme des Hurons.

MYTHOLOGY AND FOLKLORE.

" Should you ask me, whence these stories?
Whence these legends and traditions,
With the odors of the forest,
With the dew and damp of meadows,
With the curling smoke of wigwams, . . .
I should answer, I should tell you,
' From the forest and the prairies,
From the great lakes of the Northland,
From the land of the Ojibways,
From the land of the Dacotahs, . . .
I repeat them as I heard them
From the lips of Nawadaha,
The musician, the sweet singer.'
Should you ask where Nawadaha
Found these songs, so wild and wayward,
Found these legends and traditions,
I should answer, I should tell you,
' In the birds'-nests of the forest,
In the lodges of the beaver,' " . . .

—*The Song of Hiawatha.*

CHAPTER I.

TRADITIONS CONCERNING THE BEAVER AND THE WORLD'S CREATION—PRODIGIES ASCRIBED TO EARLY MEMBERS—THE BEAVER AS THE PROGENITOR OF MAN—SUPPOSED INFLUENCE OF BEAVER GHOSTS—REVERENCE WITH WHICH THE BEAVER IS TREATED—BEAVER FABLES—EARLY COLONIAL SUPERSTITIONS REGARDING ANIMAL LIFE.

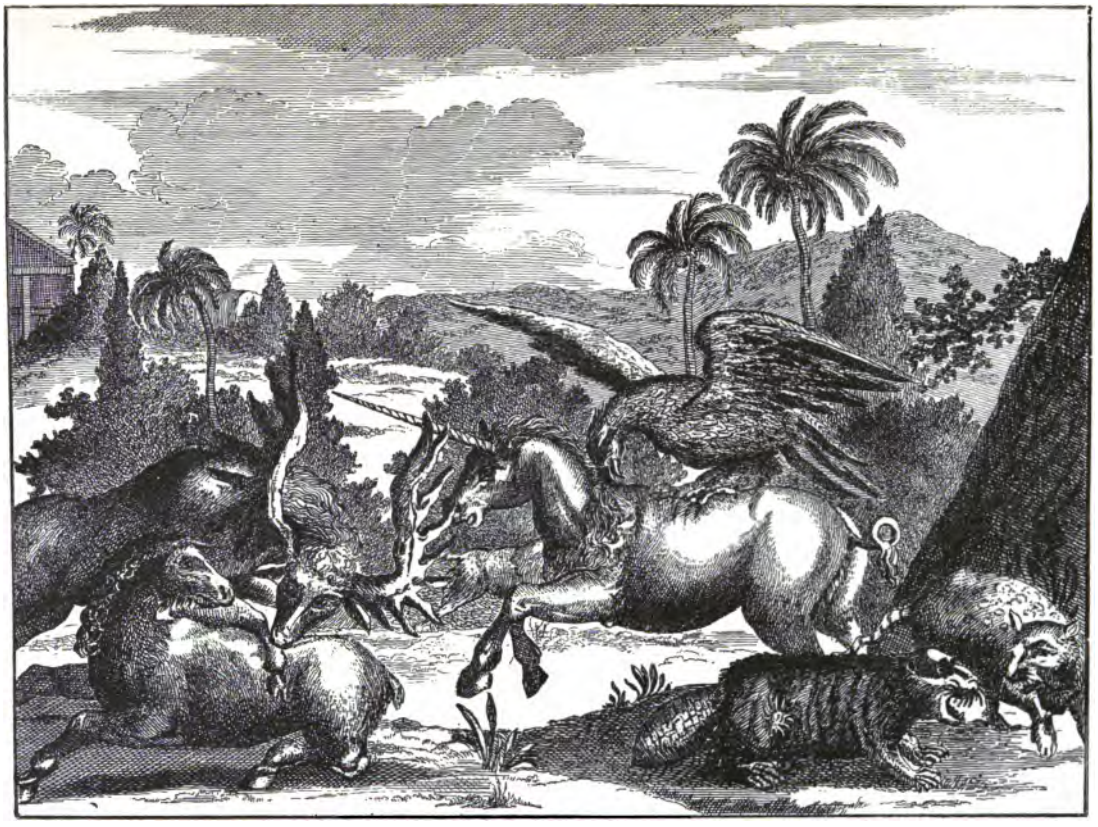
Before relating what may be called the sacred legends of the beaver, it may be well, first, to consider the people in whose minds the stories originated. It is generally admitted that climate has a remarkable effect on character, and with all the varieties from tropical to arctic, included in the original habitat of the Indians, a great diversity of character might be expected. In fact, they cannot be studied as one people, any more than could the present inhabitants of Europe, be described in one simple phrase. Thus, to the South, there were the "Digger" Indians, and the "Fishing" tribes—indifferent and unprogressive—and with them, the robber bands who preyed upon them. Further to the North a sturdier race, the great warriors, distracting their neighbours, north and south, making captives and generally playing the part of a military nation; while on this plane would be included settled and industrious tribes, such as the Hochelagans. Still higher in latitude the hardy fur-hunters, whose dealings with the Hudson's Bay Company for over two centuries, furnish ample ground for the conception of the noble possibilities of the "redman;" and with such names as Pontiac, Tecumseth and Brant, illuminating the pages of our history, we need not choose types from the poor wretches who have fallen heir to our vices only.

Then may we hold more respect for our red-skinned brother, and treat with reverence those traditions which to him were most sacred.

While the Indian cannot justly be classified among the spirit-worshippers, though he had clear conceptions of spirits and a spirit-world, yet he is much above the range of fetishism, and may most properly be considered as a nature-worshipper. Being of a meditative mind, he reasoned far beyond the visible world, though he based his belief on material evidence. It was a logical process of reasoning that brought him to face the problem of the world's creation. He believed the world was all covered with water in the beginning, and he peopled it with the beaver, the musquash and the otter, whose aquatic habits we can easily understand must have impressed him. But, as the building of the world was a prodigious task, these animals were all of gigantic size. They dived and brought up the mud with which the great spirit—the Manitou—made the earth. Then the features of the earth, the mountain ranges, cataracts and caves, were all the works of the giant beavers; and the erratic boulders, which, in many places, stand so conspicuously in our landscape, were the missles thrown by enraged spirits at offending beavers.

When the world became ready for the introduction of man, the Indian philosophy solved the problem in a way that was curious and masterly. The animals were said to have been endowed with speech, and seemed to have used the gift even as wicked mortals often do, accordingly, the great Manitou would frequently be vexed, and his wrath caused him at times to slay the evil-doer. Then, by a beautiful adaptation of the idea of the transmigration of spirits, man came forth as the spirit of the departed animal, and bore henceforth a likeness in character to the animal from which he sprang. The Amikonas, or "People of the Beaver," an Algonquin tribe of Lake Huron, claimed descent from the carcass of the great original beaver, or father of the beavers; and the beaver was one of the eight clans of the Iroquois. In the wonderful totem-poles of the Queen Charlotte Islanders, a prominent place is afforded the beaver, and doubtless the Hochelagans, or "Indians of the Beaver-Meadow," held the creature in high esteem.

The Manitou was good to man, and to make him chief among



WONDERS OF THE NEW WORLD.

all living things, the Good Spirit "smoothed with his hand the giant beasts, making them gradually smaller," and then he deprived them of the power of speech. Though animals were thus subjected to man, both were accountable to the Manitou; and even the animals and their departed spirits had powers affecting man. Many records relate the petitions of the Hunter before starting for the chase, which invariably included the promise of all reverence to be paid his victims. In this respect, the beaver, as the most valuable contributor to the social economy of the Indian, was the object of special regard, and roasted beaver was the highest desire of the Indian. After the feast the sacred bone was raised to its altar, an evidence of honor paid to the departed beaver, and then the remains were gathered with care and returned to the water, so that the dogs touched none of it. Woe to the luckless hunter who did dishonor to the bones of the beaver, and thus displeased the spirits; the beavers at once became shy, and in vain might he lay his traps.

Many of these matters may seem childish and unworthy serious repetition, but surely they are of more profit than the fabulous accounts of the beaver which practically constitute the popular range of beaver literature. The animal itself has been represented in forms the most grotesque, some of which are selected as the illustrations of this chapter; and his works have been exaggerated beyond all recognition. The dam has been described as formed of stakes five or six feet long driven into the ground in rows, with pliant twigs wattled between "as hurdles are made;" and the lodge has been extended to a five story building with windows and other conveniences; while in the erection of these, the tail has been converted into a vehicle for conveying the materials, a pile-driver for placing the stakes, and a trowel for plastering the house. In fact as Hearne wrote in 1771, the only thing that remained to make their natural history complete, was the adding of "a vocabulary of their language, a code of their laws, and a sketch of their religion."

Either from a misinterpretation of the Indian legends, or a misuse of the imaginative faculties, or from both, there exists universally in the early colonial writings the most astonishing references

to the wild animals of the country, and the following quotation will show the extreme to which these fancies reached: "On the borders of Canada, animals are now and again seen resembling a horse; they have cloven hoofs, shaggy manes, a horn right out of the forehead, a tail like a wild hog."

This creature was figured by Arnoldus Montanus, in 1671, with some of the other animals of the New World, including the beaver, and will easily be recognized in the accompanying group of chimeras, which is reproduced from the copy in the Documentary History of New York.

THE BEAVER AND HIS FAMOUS LODGES.
FROM AN OLD PRINT, 1755.

MAMMOTH BEAVERS.

" To the beavers Paw-Puk-Keewis
Spake entreating, said in this wise :
' Very pleasant is your dwelling,
O my friends ! and safe from danger ;
Can you not with all your cunning,
All your wisdom and contrivance,
Change me, too, into a beaver ? '
' Yes,' replied Ahmeek, the beaver,
He the king of all the beavers,
' Let yourself slide down among us,
Down into the tranquil water.'

. . . . . .

' Make me large,' said Paw-Puk-Keewis
' Make me large, and make me larger,
Larger than the other beavers.'
' Yes,' the beaver chief responded,
' When our lodge below you enter,
In our Wigwam we will make you
Ten times larger than the others.' "

—*The Hunting of Paw-Puk-Keewis.*

CHAPTER II.

INDIAN LEGENDS OF GIANT BEAVERS—DISCOVERY OF TROGONTHERIUM, CUVIER'S GIGANTIC BEAVER—A SEARCH FOR THE FOSSIL BEAVER OF NORTH AMERICA—CASTOROIDES OHIOENSIS—REFLECTIONS ON THE FORM AND CHARACTERISTICS OF THESE ANIMALS—THE CHANGES OF FAUNA IN RECENT TIMES.

We have already told how the Indians, basing their arguments on material phenomena, reasoned as to the formation of the various features of the earth, and by introducing the industrious beaver, they explained many of the characteristics of the landscape which to them appeared like the beaver's work; but, the proportions being so disparaging as to necessitate the conception of animals with more power and knowledge, we find a belief in the Indian mind concerning giant beavers and their herculean work. Many of these stories occur in the Eskimo legends, and the range may be said to extend over the whole of North America, and to occupy a foremost place in the thought of all its varying inhabitants. Pitetot records a legend of the West, wherein the tooth of the great beaver was made into an adze for hollowing out logs of wood for canoes. In the Algonquin Legends of New England, Chas. Leland introduces Quahbeet, the giant beaver, the clapping of whose tail made the thunders; and with all the strength of local coloring is told its various accomplishments towards shaping the earth. The Micmacs recognized the site of a beaver-dam which once flooded the Annapolis Valley; and they say the bones of the beavers who built this dam may still be found, and the teeth are six inches across. According to a tradition of the Ojibways, there was an immense beaver in some part of Lake Superior. The Indians point out an island in the lake, about two miles long, and one and a third broad, and say that the beaver spoken of was the same size. Another story relates how

Nanahbozho went one morning to Lake Superior for the purpose of catching a beaver for his breakfast. He succeeded in dislodging a young beaver and chased it towards the Sault Ste. Marie; a stone, thirty feet in diameter, to be seen to-day on the shores of Lake Michigan, was a missile used by Nanahbozho in this chase. The beaver was eventually caught in the Ottawa, and its head was dashed against the rocky banks of the river where the Indians say the marks of blood are still to be seen.

In 1828, an English scientist, Mr. Charles Fothergill, made a short sojourn in Montreal preparatory to visiting our great lone lands. During his stay in our city, it happened that the Natural History Society had invited essays on the subject of the "Quadrupeds of British North America," offering a prize for the best contribution. Mr. Fothergill became a party to the contest, thus evidencing his knowledge of our fauna, and in the course of his paper he makes the extraordinary admission that he has visited Canada with a view of searching our great North-Western Provinces, if perchance he might still find living evidence of "the Mammoth, the great Elk of the Antideluvians, and the giant Beaver; especially," says Mr. Fothergill, "as the Indians have many legends concerning these mammals, and Indian legends are seldom without some truth for their foundation." The essay is a most interesting and valuable survey of our mammals, and such faith had the essayist in the objects of his search, that he enumerates, among Canadian animals the Great Beaver, and says:—

"I have been induced to name the *Great Beaver* in this catalogue because there is pretty certain evidence of the existence of such an animal in various parts of the interior towards the North-West. The Indians of many tribes firmly believe in its existence, and assert they have often seen it. I will take, or endeavour to take, an early opportunity to lay before the society such evidences as are in my possession to prove the fact; in the meanwhile, I will merely remark that the skull which was found on the banks of the Delaware nearly forty years ago—which induced the naturalists of the United States to create a new genus under the title of *Asteopera*—

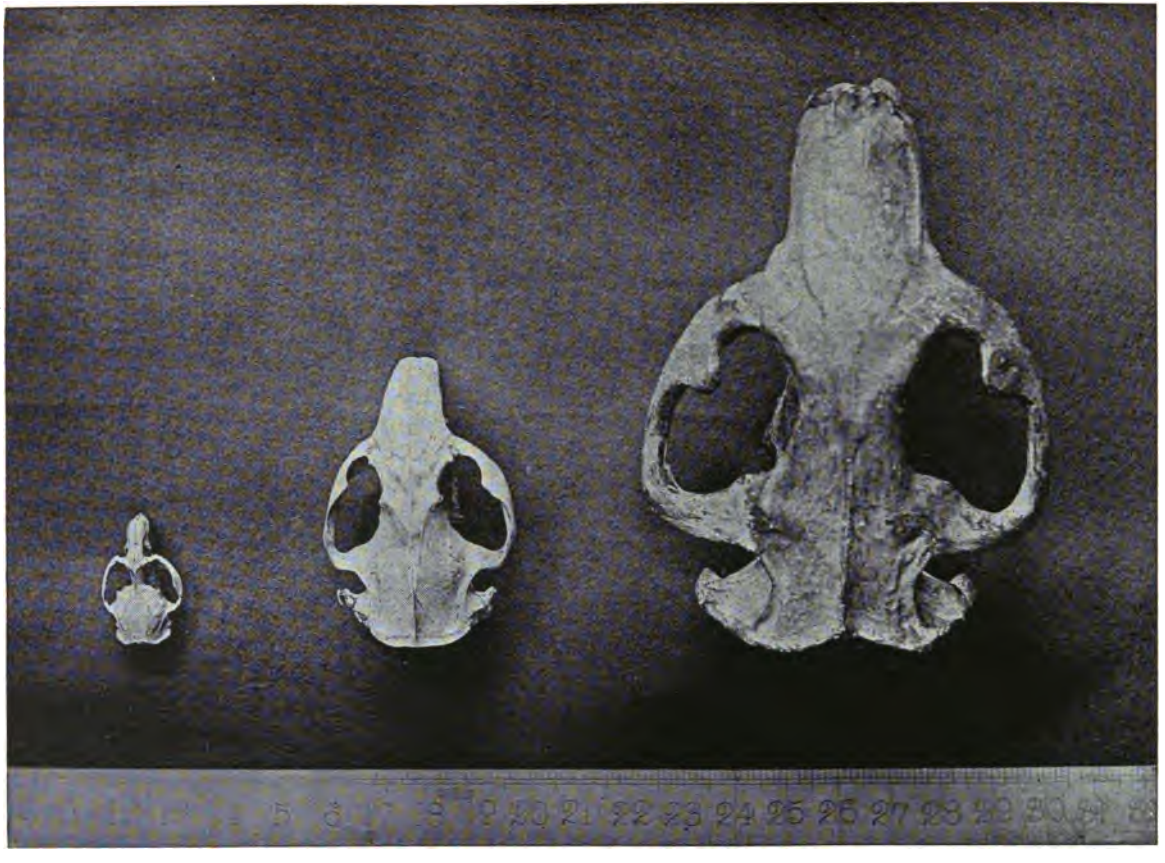
and which skull is still preserved in the Philadelphia Museum, in my mind belonged, beyond all doubt, to this animal, which is still in existence in our remote lakes and rivers in the interior."

Surely the essayist could not have known of the accomplishments of Sir Alexander Mackenzie, the discoverer of the Mackenzie River, in 1789; and of David Thompson the geographer of the North West Company, whose knowledge of the further north-west became the basis of all later surveying. It is easily possible to conjecture the fate of such a scheme, in discussion before the members of the "Beaver Club," for among them could be counted those who were personally acquainted with the greater part of the "fur-country," and their accumulated experience may be said to have exhausted the barest possibility of the existence in the flesh of the Great Beaver.

A close relationship may, however, be traced through the European fossil which was first discovered by M. Gothelf de Fischer, in the sandy borders of the Sea of Azof; and which has since been found at Ostend, Belgium; and at Cromer, and Walker's Cliff in Norfolk, England, together with the bones of the Mammoth and the Rhinoceros. The animal was named after Cuvier, the eminent Palæontologist; *Trogontherium Cuvieri*, or Cuvier's Gigantic Beaver. A figure of the fossil was sent to Cuvier, who claimed for it so close an affinity with the beavers as to rank in the same genus, and he proposed the name *Castor Trogontherium*. He says that "the teeth and all the forms of the head bear the character of the beaver; and it could not be distinguished from the head of the adult beaver of Canada if the fossil were not one-fourth larger. However, as it is not certain that we possess the skulls of these existing beavers which attain the largest size; and since the beaver formerly inhabited, and still, perhaps, inhabits the shores of Euxine; since, also, nearly all the borders of the Sea of Azof, are but vast alluvial formations,—I think one ought to know precisely the matrix of the skull in question before deciding it belonged to an extinct animal." These remarks appeared in 1812, and again in a second edition in 1823; and may possibly have been the inspiration under which Mr. Fothergill set out to discover the American representative.

For those who were conversant with the traditions of the giant beaver, and, who, like the essayist quoted, believed that the Indian legends were based on fact, a triumph was close at hand. In 1837, in the Report of the Geology of Ohio, Mr. J. W. Foster called the attention of science to the discovery of a fossil, suggesting an extinct animal of the Order Rodentia; and in 1838 he gave a description of the lower jaw, which he had found at Nashport, Licking County, Ohio, under the name of *Castoroides Ohioensis*. Ten years later the nearly perfect skull was obtained by the Rev. Benjamin Hale, of Geneva College, and on this specimen a monograph was prepared by Messrs. Hall & Wyman, which appeared in the Boston Journal of Natural History in 1847. Since then specimens have been found at Clyde, Wayne County, New York; Memphis, Tennessee; near Charleston and Schawneetown, Illinois; also in Michigan, Mississippi, Louisiana, Texas and South Carolina; giving a known habitat extending from the States of New York and South Carolina, westward to Michigan and Texas. These fragments do not, however, give any knowledge concerning the general form and characteristics of the animal, for they are all parts of the skull only, and are mainly but pieces of the teeth. Enough, however, has been determined to ally the animal closely with the beaver, and it is popularly called the "Fossil Beaver of North America." Though it is possible to recognize a likeness in dentition and cranial character with the genus *Castor*, it must not be implied that its habits and form were identical with the beaver as we know it to-day; a glance at the accompanying plate shows that the brain capacity is smaller than the beaver, and this alone indicates essential differences of character; in fact there are some features more clearly resembling the Capybara, and yet there is enough difference from either to constitute a new genus.

The age to which both these fossil animals belonged is a matter of importance, as also, is the fact that they lived within historic times, and were, doubtless, well known to the early races of men. The period is comprehended in geologic terms, as the "Quaternary, or Age of Man," and though it is spoken of geologically as recent, any calculation in years would be stupen-



FIBER ZIBETHICUS. CASTOR CANADENSIS. CASTOROIDES OHIOENSIS.

dous, as a passing study of the age will show. Dana says: "America in the Quaternary era was inferior to Europe in the number of its Carnivores, but exhibited the gigantic feature of the life of its time in its species. In North America the mammals included an elephant (*Elephas Americanus*) as large as the European, besides the Asiatic, (*Elephas Primegenius*) in the more northern latitudes; a mastodon (*Mastodon Americanus*) of still greater magnitude; horses much larger than the modern; species of ox, bison, tapir, gigantic beavers, etc."

In the "Handbook of Canadian Geology," Sir William Dawson divides the Quaternary into Pleistocene and Modern; and the latter is again divided into two periods and treated as follows:—

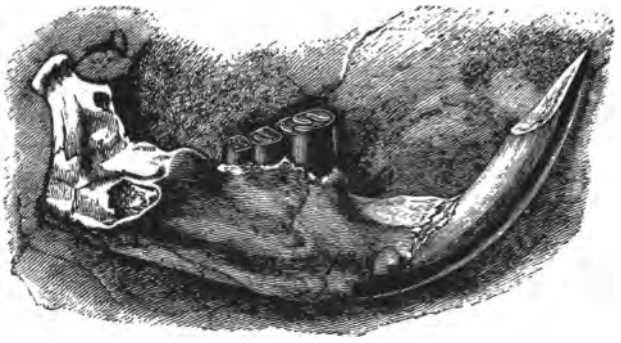
"1. *The Post Glacial.* The climate was temperate but somewhat extreme. All the modern mammals, including man, seem to have been in existence, but several others now extinct, as the Mammoth, the Tichorhine Rhinoceros and the Cave Bear, lived in the Northern Hemisphere, ... This period was terminated by a submergence or a series of submergences which with their accompanying physical changes proved fatal to many species of animals and to the oldest races of men, and left the continents at a lower level than at present, from which they have risen in the recent period . . .

"2. *The Recent or Historic Period.* This dates from the settlement of our continents at the present levels after the Post-Glacial subsidence.

"I have called this the Historic Period, because in some regions history and tradition extend back to its beginnings. The historical deluge is in all likelihood identical with the movements of the land above referred to, by which this age was inaugurated; though in certain localities, as in America, the beginning of the historic period is very recent. In this age man co-exists wholly with existing species of mammals, and the races of men are the same which still survive. The whole forms geologically one period, and the distinc-

tions made by antiquarians between stone, bronze and iron ages, and under the former between palæolithic and neolithic, are merely of local significance and connected with no physical or vital changes of geological importance. The real geological distinction is that of Palæocosmic, Post-glacial or Antediluvian man on the one hand and Neocosmic, Recent or Post-diluvian on the other. The Palæocosmic men have been divided in two races, the Canstadt or Neanderthal type and the Engis or Cromagnon type. Both of these were contemporaneous with the mammoth, the Tichorhine Rhinoceros and other Post-glacial animals now extinct. It is probable that they may be ultimately identified with the ruder tribes of the historical antediluvian period, and that the physical changes by which they and some other animals seem to have been destroyed, were the same with those recorded in the ancient history and traditions of all the older races of men."

While yet there are many fascinating problems which geology might solve, we must pass on to consider the changes in recent fauna brought about by the advance of civilization, and for the present we very reluctantly leave the facts and the fables concerning the Great Beavers.



LOWER JAW OF TROGONTHERIUM CUVIERI.

(HALF NATURAL SIZE) AFTER OWEN.

THE EUROPEAN BEAVER.

"More famous long agone, than for the salmon's leap,
For bevers Tivy was, in her strong banks that bred,
Which else no other brook of Britain nourished ;
Where nature, in the shape of this now perished beast,
His property did seem t' have wondrously express'd
Being body'd like a boat, with such a mighty tail
As served him for a bridge, a helm, or for a sail,
When kind did him command the architect to play,
That his strong castle built of branched twigs and clay ;
Which, set upon the deep, but yet not fixed there,
He easily could remove as it he pleas'd to steer
To this side or to that ; the workmanship so rare,
His stuff wherewith to build, first being to prepare,
A foraging he goes, to groves or bushes nigh,
And with his teeth cuts down his timber ; which laid by,
He turns him on his back, his belly laid abroad,
When, with what he hath got, the other do him load ;
Till lastly, by the weight, his burden he have found,
Then with his mighty tail his carriage having bound
As carters do with ropes, in his sharp teeth he grip'd
Some stronger stick ; from which the lesser branches stript.
He takes it in the midst ; at both ends the rest
Hard holding with their fangs, unto the labour prest,
Going backward tow'rds their home their loaded carriage led,
From whom, those first here born, were taught the useful sled.
Then builded he his fort for strong and several fights ;
His passages contriv'd with such unusual sleights,
That from the hunter oft he issu'd undiscern'd,
As if men from this beast to fortify had learned,
Whose kind, in her decay'd, is to this isle unknown,
Thus Tivy boasts this beast peculiarly her own."

—*Drayton.*

CHAPTER III.

THE FORMER DISTRIBUTION OF CASTOR EUROPÆUS—ITS EXTERMINATION COINCIDENT WITH THE SPREAD OF CIVILIZATION—THE BEAVER EXTINCT IN BRITAIN WITHIN HISTORIC TIMES.

When we consider that the age of the European beaver extended back to the days of the gigantic creatures spoken of in the last chapter, and that its distribution once included all Europe, the greater part of Asia, and northern Africa, we wonder, that we are not better acquainted with it. The fact, however, that for over two centuries, the hunting of beavers in America, yielded fortunes to the monopolists who controlled the traffic, would naturally attract the attention of the masses to the quarter of the world where these riches were being gathered. Canada was justly called the home of the beaver, but very incorrectly has it become popularly understood that Canada was the only home.

The peculiar association of the beaver with Solomon's wisdom, which will be referred to hereafter, indicates reasonable grounds for asserting that the beaver should have been mentioned in sacred writ; its remarkable characteristics had been noted long before the Christian era, and references to it are found in the hieroglyphics of the Egyptians.

The beaver has gradually disappeared before the spread of civilization, which first settled along the shores of the Mediterranean. As each wave covered more of Europe, the range wherein the beaver existed perceptibly narrowed and the several stages through which it has already passed in America, have all been witnessed in Europe. Undoubtedly the animal was formerly very abundant in Europe; the next stage was the alarm caused by an apparent scar-

city, and the effort to prevent careless slaughter and thus prolong the existence of the last few colonies, by framing protective laws and granting exclusive privileges of hunting; but this resulted only in heightening the ingenuity of the hunters and actually hastened the extinction of the animal. In a German charter in 1103, the right of hunting beavers was conferred along with other huntings and fishings; and a Bull of Pope Lucius III, in the year 1182, bestowed upon a monastery the property in the beavers within their bounds; while we read of beaver-reserves in Poland in the 16th century and know of some late settlements in France. A Prussian royal edict, dated 20th January 1714, concerned the beavers in the Elbe, while one subsequent, issued at Berlin on the twenty-fourth day of March, 1725, insisted on the protection of the beavers, under a penalty of no less than a sum equalling two hundred dollars. But the laws of man made little difference to the laws of nature, and no artificial device could prolong appreciably the life of the Beaver in unnatural surroundings, for to-day it is a matter of amazement that a few colonies yet remain in the remote wilds of Scandinavia, and it seems remarkable that Siberia should still send a few beaver skins to market. A study of the history of the beaver in the British Isles will serve to illustrate more fully this question of beaver extermination, and the lesson studied here on a small scale may be applied to more important issues.

Archæologists, through their researches, have made known so perfectly the conditions of the primitive inhabitants of Great Britain that their day comes almost within historic range, and we can claim nearly as intimate acquaintance with their habits and manners as if they had left written histories. The remnants of the "dug out" canoes and the discovery of the teeth of the beaver alongside of the rude stone implements, is strong evidence of a condition of things in England very similar to what was found existing in Canada only three centuries ago, and survivals of which may even yet be found among some of our Indian tribes. The fact that bones of the beaver have been discovered in so many parts of England and Scotland, shows a very wide distribution, and doubtless, the animal ranged formerly over the whole of Great Britain. Gradually civilization

spread from the south and the east, and as surely did the beaver vanish in these quarters, till history records it remaining only in the upper waters of Wales and the highland lakes of Scotland. The beaver was, of course, regularly hunted, but the objects of the chase, according to existing records, differed curiously from the incentives which have prompted the wasteful slaughter of the American beaver, for in the early and mediæval days of Europe, the greatest value was placed on the supposed medicinal properties, though the meat, especially the tail, was even then in much repute, and the wool was esteemed for its fineness. In England the beaver had served its day of domestic economy to the natives, furnishing food and clothing; then came a period, about the twelfth century, when the animal was closely hunted for castoreum and the skin; the large collection of skins made this an article of export to the continent, where beaver-felt was greatly in favor. Soon, however, we read that, "Tivy boasts this beast peculiarly her own," and then followed a few spasmodic efforts of husbanding the beaver, till finally the creature passed from the records in 1526 and henceforth without opportunity of studying the habits of the animal, tradition enlarged the unwritten history, till we have the popular mind prepared to credit the most fabulous stories concerning the American beaver, though both species were singularly alike, and gave but little excuse for the extravagant accounts which are so freely accredited to them.

Africa has long been without a sign of its former associations; Europe claims one or two colonies as a matter of wonder; Asia, from the district of the Obi River alone, continues to furnish a few skins for the fur market; while North America remains the last stage on which are witnessed the scenes of a doomed creature, whose days have been lengthened to the present, only by contributions levied upon the musquash and the coypu whose numbers have been heavily taxed, and whose history has thus become a necessary part of the present monograph.

LOWER JAW OF THE EUROPEAN BEAVER, FROM PEAT MOSS, NEWBURY, ENGLAND.

(NATURAL SIZE.)

THE MORE IMPORTANT AMERICAN RODENTS.

"The rodentia constitute by far the largest order of mammals, and one of the most important from an economic standpoint. Though the species are mostly small and apparently insignificant, their relations with man are of much moment."

—*F. V. Hayden.*

"Some have gone back to the water and imitated the fish in their ocean home; and others, smaller and feebler, have lived on by means of their insignificance, their rapid multiplication and their power of hiding."

—*Arabella B. Buckley.*

CHAPTER IV.

THE ORDER RODENTIA—ITS DISTRIBUTION—MODERN AMERICAN REPRESENTATIVES—FIBER ZIBETHICUS, THE MUSK BEAVER—THE COYPU, OR SOUTH AMERICAN BEAVER—THE CAPYBARA OR WATER-HOG—THE CANADIAN BEAVER, THE TYPE RODENT—ITS SPECIFIC CHARACTERS—NOTABLE VARIETIES.

The gnawing animals—the Order Rodentia or Glires—are unmistakably characterized by their dentition, a form most familiar, which is thus technically described :

"Incisor teeth, two in each jaw, very large, with sharp cutting chisel-shaped edges, fitted for gnawing. No canine teeth, but a wide space between the incisors and the molars."

From the character of the teeth, we learn the nature of the food the animal is best provided to consume, and in the case of the Rodents the natural diet is the harder vegetable substances—stalks, roots, seeds and fruits. Representatives of the order are found in all parts of the world, but America contains nearly as many species as all the rest of the world put together. Thus America may appropriately be called the home of the Rodentia, for not only has it the numerical advantage, but the four representatives selected for treatment in this chapter—the musquash, coypu, capybara and beaver, all American species—are the largest and most valuable of the Order.

The Musk beaver, or Musquash of the Indians, though the smallest of the four, and less than one-fourth the size of the Canadian beaver, is second only to it, in commercial importance and historic lore. The musquash is the sole representative of the Genus

Fiber, and its habitat is confined strictly to North America; had it, however, been distributed more broadly its fame might have eclipsed that of the beaver, as it certainly will survive for generations after the last beaver has forever passed away; for the musquash relies, not only on aquatic habits, but on "rapid multiplication and the power of hiding."

FIBER ZIBETHICUS—THE MUSK BEAVER.

The musquash possesses a brain both of large size and of relatively high development, it builds a home, which might easily be mistaken for the much boasted lodge of the beaver, and it is even a greater burrower. It shares with other aquatic animals much prominence in Indian mythology, and has been a great favorite in his fables.

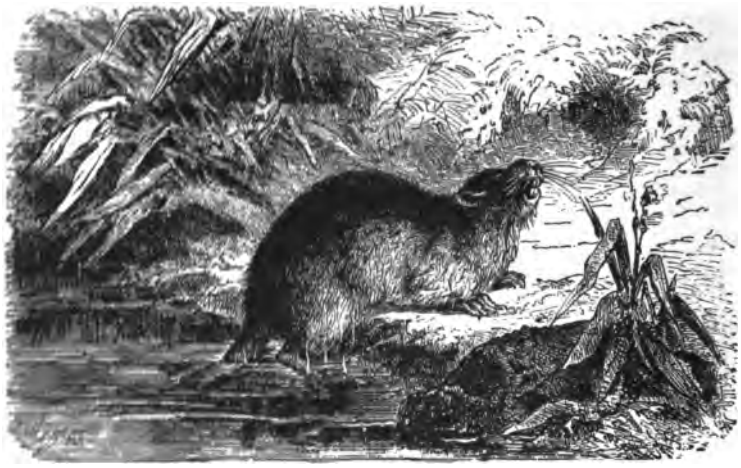
The collection of musquash skins amounts to millions annually, and being comparatively inexpensive forms an important item

in manufacture. The meat is regularly marketed in season and furnishes quite a palatable dish. Formerly the fur was used simply as a substitute for beaver in hat-making, the skin went through similar processes and furnished a good imitation at a greatly reduced price; but latterly the science of fur manipulation has made the musquash one of the most staple of all American furs; and to-day we have imitations of seal, otter and mink, produced from the musquash. The animal is, perhaps, best known to us as the muskrat, but this name does not carry sufficient dignity for a creature so closely related to the beaver; the specific name applies to the secretion contained in two small pouches which in the spring contain a thick fluid with a decidedly musky smell.

The River rat, or Coypu, as it is called by the natives, is in many ways the intermediate species between the musquash and the beaver, and having been known as the "Castors of La Plata," might appropriately be named the South American beaver. It inhabits chiefly Brazil, Chili and La Plata, where it is very numerous; it is the only known representative of the Genus *myopotamus*, and attains nearly half the average size of the beaver, and like the musquash, the coypu is very prolific.

Its introduction to commerce was very recent though of great importance, and the fact should not be overlooked that but for its contribution to the hatters, our Canadian beaver would not have survived so long. All accounts from North America during the latter half of last century, which made reference at all to the fur trade, agree in stating that the beaver would soon be extinct; but, about 1820, the immense demand was relieved by this new fur, called *nutria*—(from the Spanish, *nutra*, the otter.) The fur was plentiful and cheap, and sufficiently fine to supplant the beaver for all hatters' purposes, but had the discovery of silk been longer delayed it is doubtful whether the increasing demand could have been sustained for many years. When the silk hat succeeded to the enviable position which the "beaver" for centuries had monopolized, it became necessary to find other outlets for the skins which hitherto had been consumed almost exclusively by the hatters' trade. We therefore

find the furriers introducing the manufacture of the tanned or dressed skins into their business, and nutria, the skin of the Coypu, is to-day among the best imitations of beaver, otter and seal.



MYOPOTAMUS COYPUS—THE SOUTH AMERICAN BEAVER.

Before considering the relative features of the beaver, which are now in order for a comparative review, it may be better to glance for a moment at the curiously anomalous "Water hog," which from the standpoint of size is first among rodents, and though he is possessed of large incisor teeth, he lacks power of jaw, exhibits no engineering skill, and cannot worthily be chosen as typical of the Order. His affinities are evidently more with the pachyderms, and his external features denote much appropriateness in the popular

name; the body is massive, the legs moderately long, the toes partly webbed, and the skin is scantily covered with rough hair of a brownish color. Its economy to man seems to be limited to the value of its meat as a food supply and it is reputed to be very palatable.

Having thus reviewed the relative qualities of those members most conspicuous in the Order, we can now safely say that none is so important to man, none embodies the characteristics more completely, and hence, among living representatives none can so well sustain the claim of being the type rodent, as the Canadian Beaver. In size it almost equals the largest, its "chisel-shaped incisors" are perfect models, its engineering skill surpasses the marvelous, its fur is most valuable, and its meat is counted a luxury. It is unique in all the animal kingdom in its possession of the so called "paddle-shaped" tail, covered with scales instead of fur, and as Buffon, the great French naturalist, says: "If we consider the anterior parts, no animal is more perfectly adapted for terrestrial life, and none so well equipped for an aquatic existence, if we look only at the posterior portions." The contrast of the fore and hind feet is almost incredible, the latter being about eight times larger than the former and embodying a development peculiar alone to the beaver. All these particulars will be carefully treated hereafter, meanwhile we will only mention some of the varieties occasionally met with, which properly, may now be considered before studying in further detail the normal type.

The tendency to discover differences, apparent or real, on which to base new species, is not the highest service of the monographer; but, rather, the effort to harmonise the varieties of nature. That a clearer conception may be formed regarding the terms "species" and "varieties," we will refer to the scholarly treatment given this point by Dr. C. Claus. The definition of *species*, formerly accepted by investigators, was that of Linnæus: "Tot numeramus species quot ab initio creavit infinitum ens," and was based on the idea of "independently created units." The great lessons, however, of Embryology, and the researches of Charles Darwin have made untenable any such fixed statement, and now we have a more comprehen-

sive definition, and understand the word species to include "all living forms which have the most essential properties in common, are descended from one another and produce fruitful descendants;" though all the facts of natural life cannot be arranged agreeably to this conception, and a compromise has often to be effected by the creation of a sub-species as a grade between *species* and *variety*, where difficulties arise in attempting to draw a sharp line; for varieties which have arisen from one species may differ more from one another than do distinct natural species; thus the absence of a positive test, leaves the matter to the individual judgment of the observer to decide between species, sub-species and varieties. The higher groups of systematic zoology are of course freer from these confusions, thus the "order" comprises all the genera which conform to a simple character, (as for instance, that set forth at the beginning of this chapter), and the "genus" is an assemblage of species having further points of structure in common. Carl Linnæus (1707-1778,) was the greatest systematizer of zoology, and to him also we are indebted for the present form of nomenclature, by which every animal receives two names taken from the Latin language, the generic name, which is placed first, and the specific name, which together indicate that the character of the animal has been sufficiently defined to place it in a scientific arrangement with the whole system of life.

With this digression, we have become ready to appreciate the value of the following varieties of the Canadian beaver. They are best recorded in Dr. John Richardson's "Fauna Boreali Americana" where they are treated in the inverse order of rarity. The first variety, "nigra"—the black beaver, and although these are not accounted rare, they are only found in the proportion of one to ten thousand of the normal color. It should here be remarked that the natural color is very variable and is most correctly described as of a chestnut brown, ranging towards the south to a pale yellowish brown, and in the north approaching a blackish brown. The black beaver, however, has more than a mere relative coloring and is unquestionably an evidence of melanism—an excessive development of pigment in the skin and its appendages. Hearne recognised the beautiful gloss of the fur, and the shading must be described as bluish rather

than brownish. No difference in other respects is discernible and though apparently local and said to be found more plentifully at Churchill, Hudson's Bay, than at any other point, these specimens can scarcely constitute a *constant variety*.

Next in order comes the spotted beaver—variety " varia," which Dr. Richardson considered more rare than the preceding, but this might be perhaps based on his personal observation which could not, necessarily, have been very extensive. He reports that he never met with a specimen, which seems rather remarkable as the white spotted beavers are not unfrequently met with even now, among Hudson's Bay beavers ; although having no special beauty there does not exist the same demand, which tempts the capture of the black beaver, whose pelt always fetches a high price. The variety " varia " is doubtless a " sport " inclining to albinism, the white spots generally occur on the throat or along the sides, but all other characteristics correspond exactly with the normal type.

The white beaver—variety, " alba," is incomparably the rarest, though it is evidently nothing but an albino condition of the type *Castor Canadensis*. The Indians attach much value to these rare skins, which the lucky hunter converts into a medicine bag, and although this fate befalls albino skins of many other animals, such as the otter, the skunk and the musquash, those of the beaver seem to be held in more than ordinary esteem by the Indians, owing perhaps to their extreme rarity. Samuel Hearne saw but one in the course of twenty years, though Prince Maximillian, in 1843, speaking of beavers found upon the Yellowstone River says, " Yellowish-white and pure white are not unfrequently caught on the Yellowstone." About twenty years ago, Mr. Harrison Young, of Montreal, then connected with the Geological Survey of Canada, while travelling in the neighbourhood of Little Slave Lake, secured nine pure white beaver skins in one parcel. The occurrence, though without parallel in Natural History records, suggests the possibility of perpetuating a race of white beavers, for the discovery of so large a number in one locality would scarcely indicate an ordinary freak of nature, but rather implies hereditary qualities.

Interesting as these speculations may be, the history of the beaver in its now familiar form is a matter of much greater importance, and with the slight introduction of the subject afforded in this chapter, we will proceed to a study of its social life.

THE LARGEST EXISTING RODENT—HYDROCHÆRUS CAPYBARA.

LIFE HISTORY OF THE CANADIAN BEAVER.

THE BEAVER.

Up in the North if thou sail with me,
A wonderful creature I'll show to thee,
As gentle and mild as a lamb at play,
Skipping about in the month of May,
Yet wise as any old learned sage,
Who sits turning over a musty page.

And yonder the peaceable creatures dwell
Secure in their watery citadel;
They know no sorrow, have done no sin;
Happy they live 'mong kith and kin,
As happy as living things can be,
Each in the midst of his family;
Ay, there they live, and the hunter wild
Seeing their social natures mild,
Seeing how they were kind and good,
Hath felt his stubborn soul subdued;
And the very sight of their young at play,
Hath put his hunter's heart away;
And a mood of pity hath o'er him crept,
As he thought of his own dear babes and wept.

I know ye are but the beavers small,
Living at peace in your mud wall;
I know that ye have no books to teach
The lore that lies within your reach.
But what? Five thousand years ago
Ye knew as much as now ye know;
And on the banks of streams that sprung
Forth when the earth itself was young,
Your wondrous works were formed as true
For the All-Wise instructed you.

But man? How hath he pondered on,
Through the long term of ages gone;
And many a cunning book hath writ;
Of learning deep and subtle wit;
Hath encompassed sea, hath encompassed land,
Hath built up towers and temples grand,
Hath travelled far for hidden lore,
And known what was not known of yore,
Yet after all, though wise he be,
He hath no better skill than ye.

—*Mary Howitt.*

THE FIRST WORK OF THE BEAVER KITTEN.

CHAPTER V.

THE FAMILY OF BABY BEAVERS—THE BEAVER KITTEN—SUMMER WANDERINGS—THE COLONY REASSEMBLES—WORK ON THE DAM AND LODGES—PROVIDING SUPPLIES FOR THE WINTER—WINTER EXPERIENCES.

With the melting of the snow and the disappearance of ice from the lakes and ponds, the family of baby beavers are first introduced to the wonders of nature which surround them. Earlier than this, they can only remember the warm nest in the dark lodge, where, like all other little babies, they were fed on milk. But now they are strong enough to toddle about, and they are taken for a swim in the pond, and allowed to crawl upon the banks. The young family usually consists of three or four, and a happy time they have playing in the water and roaming about the banks in search of dainty green shrubs. It is not long, however, before they are led up the stream to another pond, and still higher up to others, where fresh delights await them in the increasing variety of fruits and plants. As the time wears on the weather gets warmer, and their bed is a tuft of soft grass exposed to the silvery light of the moon, from it they plunge to the cool depths of the great lakes for refreshing baths, while the woods afford an endless assortment of luxuries on which the beavers fatten. There is no work to be done and life is a round of pleasure; for dreams of the hunters are unknown to the little ones, nor do the old ones dread them at this season. Thus the summer passes and the little beavers now grown to kittenhood think of the cosy lodge down the stream, for the nights are chilly. Soon a start is made, and after a long journey the familiar neighbourhood is reached. Caution is now most necessary, and the young ones learn the cunning ways of the trapper, who sets great store on a fat "Ah-wa-nesha," as the Indians call the beaver kitten, for perhaps some of the happy babies who splashed in the quiet old pond have

already enriched the hunter. Great changes have taken place since the family left in the spring ; the ice has carried away part of the dam, and the lodges show sad need of repairs. After a careful survey of the surroundings for signs of danger, the work begins, and the kittens learn to employ more usefully their sharp cutting teeth. The old beavers cut down great trees, which fall with fearful crashing, the noise echoing through the quiet woods, and driving the workers into shelter till all danger is passed ; the young ones now set to cutting the smaller branches and swim away with them to the dam, where they are placed to advantage and plastered over with mud, roots and grass ; while stones are added to keep all tight and firm.

The dam has first to be rebuilt and strengthened, so that the water will rise to the required level to enable the colony to swim comfortably under the ice, and to allow for the storing of a good supply of branches. Then the lodge is repaired ; the old bedding cleaned out, and together with a supply of branches is heaped upon the roof of the lodge and a fresh covering of mud-plaster, the same as used for the dam, is laid over all, and thus the home is prepared for the long, cold winter. The retreats in the banks—the burrows or "washes" —are enlarged or increased in number, and a full supply of branches having been cut and laid in the deep pools near the lodges, all is ready for the coming frosts, which soon put an end to work and lock the beavers completely under the heavy covering of ice. For some time afterwards the beavers swim about under the ice prospecting for food, pulling up the great roots of the water-lilies and dragging them to the burrows, there to enjoy the feast ; but even this occasional treat gets monotonous and the confinement has its effect on the beavers, who sleep much longer and do less travelling as the winter advances.

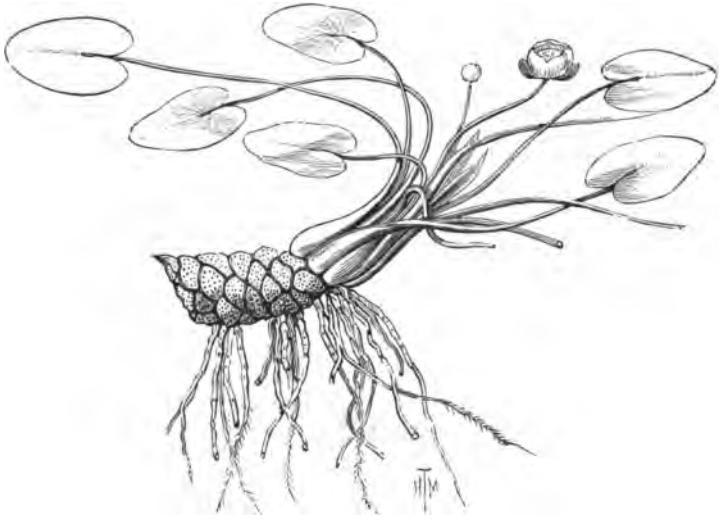
Towards the spring the food will sometimes become exhausted, and it is then necessary for the old beavers to seek a fresh supply. An outlet through the ice has to be effected, and then follows the very difficult and dangerous undertaking of travelling over the snow and felling some trees ; all the enemies of the beaver are looking with

keenest expectancy, for his first appearance in the spring, the carnivorous animals are ravenous after their long fast, and the trapper, knowing that just now the beaver's coat is in its best condition, in his rounds through the woods his trained eye will quickly discover the work of beaver, and the foot marks in the snow tell him what little it is necessary to add to his experiences in beaver-trapping.

STUMP SHOWING CUTTINGS FROM VARIOUS LEVELS OF SNOW.

The hungry animal will come again to repeat his labors, but it must be cunning, indeed, if it would overcome the devices of the professional trapper.

Should the Guardian Spirit of the beaver kitten protect its life through the experiences of two more years, the parental nest is left, when the creature completes its third year ; and the age of maturity brings its responsibilities involving the building of another lodge, and the repetition of the various phases of life, which for generations have gone on ; though each year not only are the families thinned, but whole colonies are mercilessly slaughtered in the efforts to satisfy the whims of fashion or a thoughtless greed for wealth.



THE LARGE YELLOW POND LILY.

(*Nuphar Advena.*)

SHOWING THE RHIZOME OR ROOT-STEM ON WHICH THE BEAVER FEEDS.

GEOGRAPHICAL DISTRIBUTION.

"When we had proceeded more than half way over the dam, which was a full mile in length, we came to an aged Indian, his arms folded across his breast, with a pensive countenance looking at the beavers swimming in the water, and carrying their winter's provisions to their houses . . . . . He invited us to pass the night at his tent which was close by; the sun was low and we accepted the offer."

. . . . . .

"I have told you that we believe in years long passed away, the great spirit was angry with the beaver, and ordered Weesaukejauk (the hatter) to drive them all from the dry land into the water, and they became and continue very numerous; but the great spirit has been and now is very angry with them, and they are now all to be destroyed. About ten winters ago Weesaukejauk showed to our brethren the Nepissings and Algonquins the secret of their destruction; that all of them were infatuated with the love of the castoreum of their own species, and more fond of it than we are of fire water. We are now killing the beaver without any labour; we are now rich, but shall soon be poor, for when the beaver are destroyed we have nothing to depend on to purchase what we want for our families; strangers now overrun our country with their iron traps, and we and they will soon be poor."

—MS. Notes by David Thompson, 1794.

CHAPTER VI.

NORTH AMERICA THE FORMER HABITAT OF THE INDIAN AND THE BEAVER—THE HUDSON RIVER, THE ST. LAWRENCE RIVER AND HUDSON'S STRAIT, THE THREE AVENUES OF ASSAULT—THE COASTS OF THE PACIFIC AND THE ARCTIC DISCOVERED—GRADUAL RETREAT OF THE BEAVER TO THE UPPER TRIBUTARIES—HIS LAST HOME, THE QUIET POOLS ALONG THE HEIGHTS OF LAND.

The distribution of the beaver in North America was greater than that of any other animal, and might be considered as co-extensive with that of the Indian. The southern boundaries were the Gulf of Mexico and the Rio Grande, while from the Atlantic to the Pacific it ranged northwards to the region of perpetual snow. Of course within this vast territory there were places, such as the desert and prairie country, where the creature was but little known, while also there were the great water districts of the Hudson's Bay and the Saskatchewan River, the St. Lawrence River and the Mississippi where the beavers overran the country. The adventurers who braved the Atlantic in early times, did so not to hunt or traffic, but to gather gold and other concrete riches, and the presence of fur bearing animals more or less plentifully, was a matter of small concern to them.

Coincident with the period of the Renaissance in Europe, however, commerce revived, and new life quickened enterprises of many kinds, among which was the project to discover a short route to Carthay. The market was thus ready for fresh fields of supply and companies were soon organized to collect the rich peltries offered by the newly discovered world. England entered on the north by Hudson's Strait and planted her colonies over the North-West; France colonized the St. Lawrence, while the Dutch made the Hudson River their approach to the interior. The Indian had been the

prudent husbander of the beaver, and by early accounts the two seemed to have lived on remarkably intimate terms, as it is stated that frequently colonies of beavers would be found within a short distance of the Indian villages. It was easily possible for the Indian to supply all his wants both of food and clothing from the near beaver colony without disturbing them at all, for there would always be those who wandered from the colony far enough to permit of their destruction without giving the least alarm to their companions.

The opportunity of obtaining from the white man a choice of his best possessions in return for the discarded beaver coat, or for any surplus beaver skins then about the camp, was an era exceeding even the dreams of life in the "land of the setting sun." Imagine what it meant to the Indian to become the owner for the first time in his history, of a knife, a file, or even a needle; and when he could in exchange for the easily gotten beaver-pelt possess not only some of the wonderful manufactures of civilization, but clothe himself in the gorgeous scarlet cloth which to his mind was a robe fit to appear in before the Manitou on the day when he would join the departed spirits of his tribe; nor should we be surprised that the credulous Indian thought his white brother a demi-god, to bring such treasures and ask so little in return. The carving of the wampum bead and the laborious shaping of implements from the ill-adapted bone or stone, were soon doomed to be lost arts. But above all other acquisitions, however, was the introduction of the gun which so far surpassed the arrow and the spear, that these soon became the toys for the prattling child, while the sire displayed the magic contrivance which embodied the very spirit of death, What to him were a hundred beaver skins compared with the possession of a gun, though even then the white man held fast the key and claimed goodly toll for powder and shot. Alas, that the avaricious trader should not have been satisfied with the control he exercised in this way over the Indian, but among his good gifts should have brought a curse so dreadful in its records, that, while a red-skinned brother lives, we should never cease the attempt to redress the awful wrong our race has done, by using the fatal influence of "fire water" to obtain a little worldly gain.

CARTE GENERALE
DE CANADA
LAC SUPERIEUR
LAC DES ILLINOIS
LAC DES HURONS
LAC ERRIE ou DE CONTI
FORT DE NELSON
FORT DE KAMINISTIGOYAN
Fort de Crevecœur
MISSILIMAKINAK
Chagouamigon
Sauteurs
Jesuites
Noches
Nepiserini
Temiskamingue
Ile Minigo
R. du Tombeau
R. de Michipikoten
R. des Puants
R. de Quarante
R. Longue
FLEUVE DE
MISSISIPI
Occident
Sept
Midy
LIMITES DE CANADA
Ces Limites sont justement la route que les Illinois, Sumamis et autres Sauvages par terre, de même celle que les Yroquois suivoient pour aller porter la guerre chez jusqu'au de la du Missisipi.
Andastoqueronons
Errieronons
Ouabach R.
Sumamis
Illinois
Outagamis
Sakis
Maskoutins
Aouastinons
Aouastanons
Outtanons
Pays de Chasse de castor des Yroquois
Chasse de castor des Yroquois
Fort S.t Joseph
Fort de Miamis
Portage de Chegagon
Portage des Illinois
Village des Sauvages
Village des Iroquois
Ance du Tonerre
Baye
Forest pour
Pt. du Fort du S.t S.t Germain pour empescher les Assinipoualacs de descendre au Port de Nelson
Fort tantost aux Anglois tantost aux François
Pt. du Detour
Ile de Missilimakinak
Ile aux bbis blancs
Hurons outaouas François
Chasse des Puants
Chasse des Sauteurs
Chasse des Illinois
Chasse des Sauvages
Chasse des Francois
Chasse de la Mission de St. Marie
Chasse de la Mission de St. Jean
Chasse de la Mission de St. Ignace
Chasse de la Mission de St. Joseph
Chasse de la Mission de St. Michel
Chasse de la Mission de St. Francois
Chasse de la Mission de St. Paul
Chasse de la Mission de St. Pierre
Chasse de la Mission de St. Jacques
Chasse de la Mission de St. Antoine
Chasse de la Mission de St. Nicolas
Chasse de la Mission de St. Barthelemy
Chasse de la Mission de St. Simon
Chasse de la Mission de St. Thomas
Chasse de la Mission de St. Matthieu
Chasse de la Mission de St. Philippe
Chasse de la Mission de St. Andre
Chasse de la Mission de St. Jean Baptiste
Chasse de la Mission de St. Jean Evangeliste
Chasse de la Mission de St. Jean Apostre
Chasse de la Mission de St. Jean Martyr
Chasse de la Mission de St. Jean Confesseur
Chasse de la Mission de St. Jean Docteur
Chasse de la Mission de St. Jean Abbe
Chasse de la Mission de St. Jean Pape
Chasse de la Mission de St. Jean Cardinal
Chasse de la Mission de St. Jean Archevesque
Chasse de la Mission de St. Jean Evesque
Chasse de la Mission de St. Jean Prestre
Chasse de la Mission de St. Jean Diacre
Chasse de la Mission de St. Jean Soudiacre
Chasse de la Mission de St. Jean Acolyte
Chasse de la Mission de St. Jean Exorciste
Chasse de la Mission de St. Jean Lecteur
Chasse de la Mission de St. Jean Portier
Chasse de la Mission de St. Jean Clerc
Chasse de la Mission de St. Jean Moine
Chasse de la Mission de St. Jean Religieux
Chasse de la Mission de St. Jean Religieuse
Chasse de la Mission de St. Jean Novice
Chasse de la Mission de St. Jean Postulant
Chasse de la Mission de St. Jean Oblat
Chasse de la Mission de St. Jean Donne
Chasse de la Mission de St. Jean Converse
Chasse de la Mission de St. Jean Frere
Chasse de la Mission de St. Jean Sœur
Chasse de la Mission de St. Jean Pere
Chasse de la Mission de St. Jean Mere
Chasse de la Mission de St. Jean Fils
Chasse de la Mission de St. Jean Fille
Chasse de la Mission de St. Jean Petit
Chasse de la Mission de St. Jean Petite
Chasse de la Mission de St. Jean Grand
Chasse de la Mission de St. Jean Grande
Chasse de la Mission de St. Jean Vieux
Chasse de la Mission de St. Jean Vieille
Chasse de la Mission de St. Jean Jeune
Chasse de la Mission de St. Jean Jeune Fille
Chasse de la Mission de St. Jean Homme
Chasse de la Mission de St. Jean Femme
Chasse de la Mission de St. Jean Enfant
Chasse de la Mission de St. Jean Garçon
Chasse de la Mission de St. Jean Fille
Chasse de la Mission de St. Jean Petit Garçon
Chasse de la Mission de St. Jean Petite Fille
Chasse de la Mission de St. Jean Grand Garçon
Chasse de la Mission de St. Jean Grande Fille
Chasse de la Mission de St. Jean Vieux Garçon
Chasse de la Mission de St. Jean Vieille Fille
Chasse de la Mission de St. Jean Jeune Garçon

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GRAND ESPACE DE TERRE
DE LABRADOR OU DES ESKIMAUX
Explication des Marques
Sont des Villes Françoises ou Angloises
Sont des Villages Anglois ou François
Sont des Villages des Sauvages
Sont des Nation sauvages detruites par les Yrequois
Sont des Pais propres à faire les chasses de Castors
Ces forts avec de petites Croix sont abandonez
Sont des Saults ou Cataractes dans les Rivieres
Sont des lieux ou l'on porte les Canots d'une Riviere l'autre
Isles Danois
Port aux Danois
Fort tantost aux François tantost aux Anglois
Hachadibi
Tabitibi
Moulin a Planches
Chikoutimi
Ladriousak
Papinachois
Grand Riviere des Cuos
MATAOUAN
Lorette
Kebek
Ile Rouge
Ile aux Lievres
Ile aux Coudres
Saut de la Chaudiere
3. Rivieres
Mont Real
Riviere du Lievre
Chanbli
Chedabouktou
Ile de Miscou
Miramichi
Ile de la Madelaine
Ile de Cap breton
Port Royal
PAYS D'ACADIE
COS. ces
KENEBEKI
FRANÇOIS
aux Yroquois
ENGLISH
Orange
YORK
MANATE
NOUVELLE ANGLETERRE
Guerre plus
Agnus
Chatagnis
Onnyoronis
Goyogoans
Ile de Manate
MER
OCEANE
Echelle de 120 lieues à 20 par degre selon les Navigateurs François
BAYE
Ile Mingans
Ile Danti
Ile Verte
LAURENS
Ile Percée
Ile Benavent
Ile de Chaleurs
Ile aux Oeufs
Ile Brion
Ile aux Perroquets
Ile aux Oiseaux
Orients
58
53
48
310
315
320
325

CARTE GENERALE
DE CANADA
Septe
Occident
Midy
LAC SUPERIEUR
LAC DES ILLINOIS
LAC DES HURONS
MISSILIMAKINAC
FORT DE NELSON
FORT DE KAMINISTIGOYAN
Fort tantost aux Anglois tantost aux François
Temiskamins
Chagouamigon
Sauteurs
Iesuites
Noches
Napiserini
Missisakis
Hurons outaouas François
Ile de Missilimakinac
Ile aux Oyes
Ile du Detour
Ile aux Gruës
Ile aux Bois blancs
Ile Minong
Fort de Crevecœur
Fort St Joseph
Fort à la Pose
Chasse de castor des Iroquois
Chasse de castor des Iroquois
Chasse de castor des Iroquois
Chasse de castor des amis des Francois
Chasse de castor des amis des Francois
Chasse de castor des amis des Franc

GRAND ESPACE DE TERRE
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Isles Danois
Port aux Danois
Fort tantost aux Francois tantost aux Anglois
Chikoutimi
Lacpriusak
Papinachois
Tabiabi
Moulin a Planches
MATAOVAN
Grand Riviere des Outaouas
Lorette
KEBEK
Ile Rouge
Ile aux Lievres
Ile aux Coudres
Ile de Miscou
Mirramichi
Chedabouktou
Saut de la Chaudiere
3. Rivieres
Mont Real
Riv. du Lievre
Chambli
PAYS D'ACADIE
Port Royal
Passage de Canseau
COS. Ct des FRANÇOIS
KENEBEKI
Guerre aux Yroquois pas plus loin
Orange
YORK
MANATE
NOUVELLE ANGLETERRE
ONTARIO ou FRONTENAC
Riv. de Manate
Echelle de 100 lieües a 20 par degré Selon les Navigateurs François
MER
OCEANE
Baye de S.t Laurens
Ile Mingans
Ile Danicoüate
Ile Percée
Ile Bonaventure
Ile aux Oeufs
Ile aux Brie
Ile de la Madelaine
Ile de Capbreton
Ile Rosmers
Orients
53
48
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310
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330
321

The great slaughter began with the establishment of the first fur trading post in 1604, when Champlain planted his colonists at Quebec, and followed with other settlements on the St. Lawrence, which, from subsequent experience proves to have been the natural highway to the richest fields on the continent.

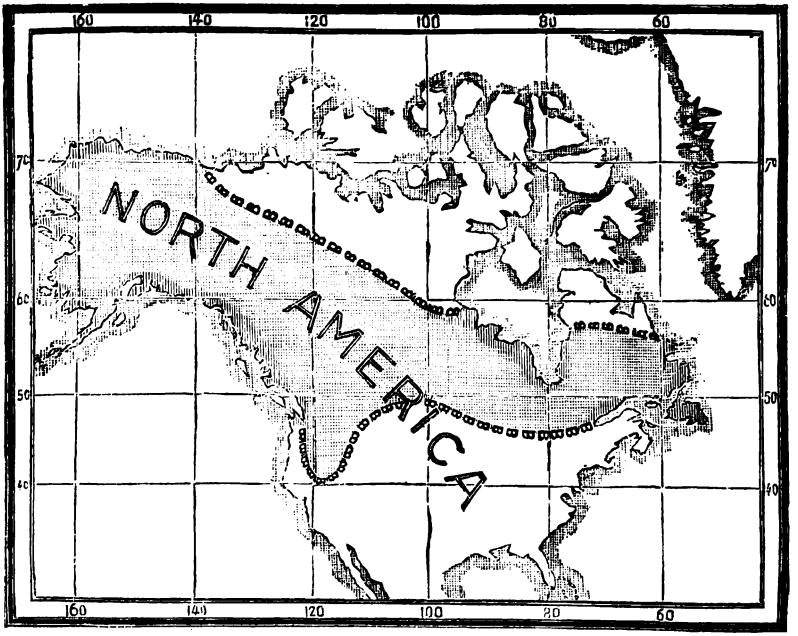
Up the Cataraqui to the chain of lakes—" Ontario, or Frontenac," " Errie, or DeConti," and the lakes of " the Hurons" and " the Ilinois"—the trappers and traders pressed ; and though, as appears in the accompanying map, the country contained many beaver-reserves of the Iroquois and other tribes friendly to the French, these must soon have been depopulated.

The Dutch from New Amsterdam and the neighborhood of the Hudson River, traded also into the lake district, and helped materially to thin the numbers of the beavers, from which followed contention and conflicts with those who tried to control the Indian trade in the rich peltries.

On the north, the Company of Adventurers Trading into Hudson's Bay held absolute sway over an immense district, till the decreasing profits resulting from competition on the Cataraqui route, suggested a search for new fields ; when from Montreal expeditions were furnished, which, by way of the grand river of the " Outawas," pressed westward to the Pacific, and northward to the Arctic Ocean, thereby extending the operations of the beaver hunter, and greatly increasing the profits of the traders, who found many quarters still in a state of primitive savagery, though all had been indirectly enriching the Hudson's Bay Company.

Now arose the struggle to break the monopoly, which had so long been undisputed, and the worst consequences followed the efforts to win the patronage of the Indians ; for not only was a reckless slaughter of the beavers instituted, but robberies and bloodshed frequently accompanied the riotous meeting of rival traders. No toleration, no sense of justice, no thought of the inevitable results which would follow their open policy of extermination ; though

many posts were scarcely established before the entire neighbourhood was destitute of beavers, and the position was abandoned as useless. The period of the fiercest contest was the first sixty years following the British possession of Canada—1760 to 1820—and these six decades, representing the sovereignty of George III, embody the true romance of our history, when the heterogeneous elements of our country wore away past differences and settled into peaceful, loyal, national life. The range of beavers though still vast, had become unprofitable as compared with former days, and compromises were now effected, whereby the old policy of extermination disappeared, and an intelligent supervision of the requirements necessary to perpetuate the animal, was instituted by the Hudson's Bay Company,



MAP SHOWING DISTRIBUTION OF BEAVER—ABOUT 1850.

who again became the great monopolists of the beaver trade. But the height of fame had been reached, and the demand, once dependent solely on the beaver, was now supplied from several sources, if not altogether supplanted by the introduction of silk.

Some colonies still linger in the United States, on the slopes of the Rocky Mountains, and are sparcely scattered over the continent, —occupying mostly the upper tributaries of our great waterways— as shown by the shaded portion on the foregoing map.

The question is often asked, "Where, to-day, are beavers to be found in their primitive state?" and the answer is not difficult to give, for the beaver is of slow locomotion on land, and its habits confine it very closely to the neighborhood of its birth; it keeps to the water courses, and as the hunters follow, it recedes farther up the streams, till on the height of land, the quiet lakes and pools offer a last retreat, but alas, no sanctuary; and the white man with his "fire waggon" dashes through the woods, changing as if by magic the country through which he passes, with utter disregard for the quiet denizens of the forest.

As to the ultimate destruction of the beaver no possible question can exist, and the evidences of approaching extermination can be seen only too plainly in the miles of territory exhibiting the decayed stump, the broken dam and deserted lodge. The passing bear or wolverine tears open the lodge, partly in the vain hope of finding a meal, partly from habit; the rising waters float the logs away, while the drifting ice in fall and spring gradually destroy the dam till within a decade, where once the busy colony spent their happy domestic lives, no sign remains of all their wondrous toil.

Along the watershed, between the Hudson's Bay and the St. Lawrence; in the upper waters of the Frazer and Peace Rivers, and along the Rocky Mountain range may be considered the last homes of the beaver.

THE ADVANCE OF CIVILIZATION.

ENGINEERING ACCOMPLISHMENTS.

"Most remarkable among rodents for instinct and intelligence, unquestionably stands the beaver. Indeed, there is no animal—not even excepting the ants and bees—where instinct has risen to a higher level of far-reaching adaptation to certain constant conditions of environment, or where faculties, undoubtedly instinctive, are more puzzlingly wrought up with faculties no less undoubtedly intelligent."

. . . . . .

"It is truly an astonishing fact that animals should engage in such vast architectural labors with what appears to be the deliberate purpose of securing, by such very artificial means, the special benefits that arise from their high engineering skill. So astonishing, indeed, does this fact appear, that as sober-minded interpreters of fact we would fain look for some explanation which would not necessitate the inference that these actions are due to any intelligent appreciation, either of the benefits that arise from the labor, or the hydrostatic principles to which this labor so clearly refers."

—George J. Romanes, M.A., LL.D., F.R.S.

CHAPTER VII.

TREE FELLING AND LOG ROLLING—THE CONSTRUCTION OF THE LODGE AND BURROWS—VARIETIES OF DAM, AND METHODS OF BUILDING—THE CANAL, ITS DEVELOPMENT AND USES.

If no exaggerations had ever appeared in connection with the beaver, except those referring to his performances in felling trees, the stock of these alone would have been sufficient to damage the reputation of Natural History writers; for the accomplishment of applying their cutting teeth to the trunk of a tree, in much the same manner as a rat will cut the corners of cupboard doors, has been magnified and embellished beyond recognition. The beaver is supposed to be able to fell the tree in any direction he chooses, thus overcoming the laws of gravitation, and great stress is laid on the fact that "he always makes the tree fall towards the water;" yet, it is generally overlooked, that trees growing near water naturally incline with the sloping of the banks towards the waters, and that the development of branches and foliage is greater in the direction of the open space over the water.

The most elaborate details concerning these statements are to be found in a little volume, published in 1738, entitled "Avantures du Sr. C. LeBeau." It is utterly incomprehensible how such accounts could have had birth; and when those who are supposed to record actual experiences, write such fabulous nonsense, can it be wondered that the masses who never have had the opportunity of disproving the statements, have accepted them for what they claim to be, that is, the evidence of an eye witness.

LeBeau, not satisfied with giving his pen absolute license, has given equal latitude to the pencil, and the accompanying plate reproduced from the original engraving, shows clearly that the artist

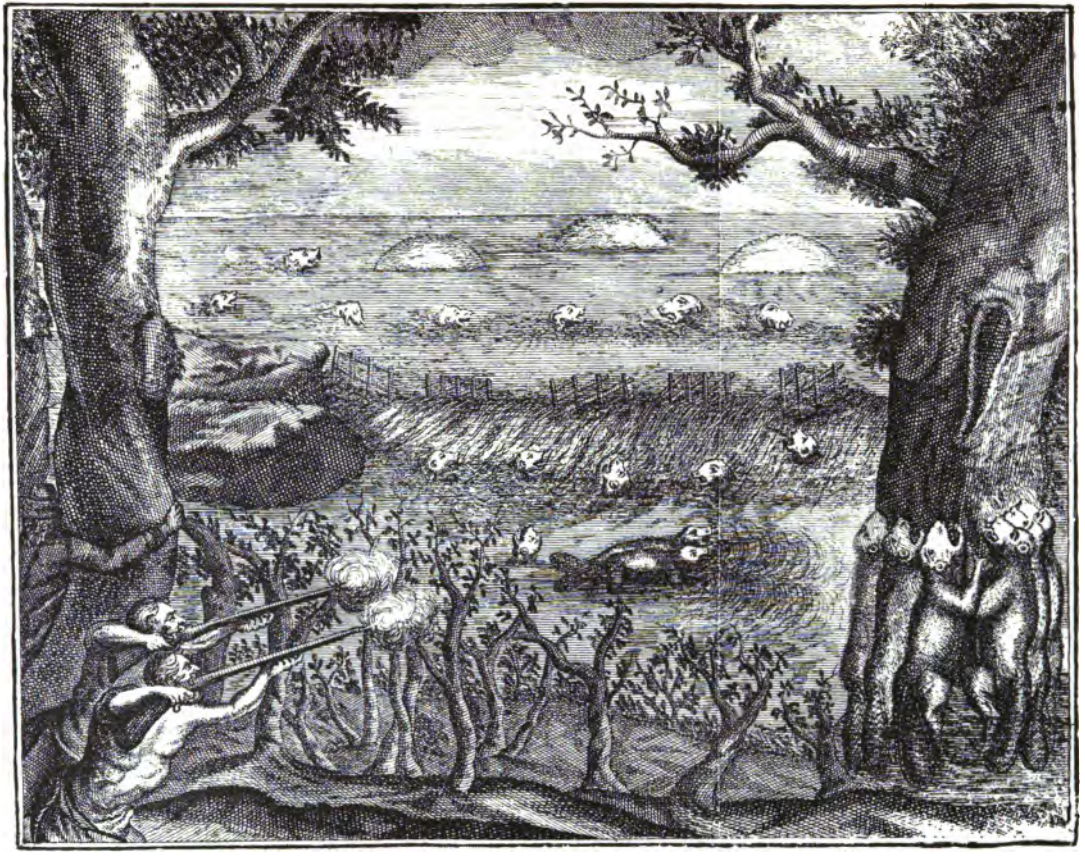
lacked not the power of illustrating. It is almost necessary to point out some of the nice details to ensure an appreciation of the work, hence the following short explanation :

The three mounds in the distance are supposed to represent beaver lodges, for the accommodation of say half a dozen beavers each, and the highly finished surface, intended to show the result of plastering, is overdone in a most exaggerated degree. Of the various expressions given to the beavers as they sport about in the water (not to speak of those in the foreground) it is only necessary to quote LeBeau's description of the appearance of the animal : "Its body much longer than thick, is nearly the size of our large terrier dogs, with its stomach flattened ; the shape of its head is like that of the rat, having eyes and ears, if they were not flattened, almost like that of a cat, and about three times as large as the latter ; it has also the cheeks and mouth of a hare."

The dam naturally forms a very important feature in the picture, and the marvellous trellis work which divides the distant from the near water, is intended to enlighten those who seek for first-hand information, whereas nothing could be more remote from the truth. As to the group in the foreground, we will let LeBeau tell the story himself:—

"One hour was spent while our repast was being prepared, whilst I decided against the wishes of my savages to go for a walk on the banks of the river, in the hope of perhaps seeing some beavers at work there.

"I was not mistaken in this idea, but, in order to approach more closely a place where on landing I had remarked some large trees half cut through, I advanced quietly on all fours, to see without being seen, these beautiful born architects, of whom I had heard so many marvels. I was already quite close when a certain noise that I heard, exciting my curiosity more and more, induced me to stand upright behind a large tree, to see more at my ease what caused it.



LE BEAU'S MARVELOUS VISION.

"It was then that without moving from my place, I saw quite a hundred of these animals occupied on a work as admirable as it was surprising. There were a dozen of them, who pressing close to one another and standing on their hind feet were sawing, or rather cutting with their teeth a large tree about 12 feet in circumference, whilst more than fifty others were occupied in cutting and trimming the branches of another tree already fallen.

"It was a pleasure to me to see the cleverness with which they conducted these branches by swimming. One moment I saw them jumping and rolling over these materials, then I could no longer see either branches or beavers, and in some few moments, I perceived them in still greater numbers on the surface of the waves, holding as if in anger these same branches which had fallen to them, and with which they dived to the bottom of the river.

"The most amusing part to me was to see two seated on their tails, solely occupied in watching the workers and in preventing any advance on the side that the tree which they were cutting ought to fall. Several others a little farther off, seemed to me to act as inspectors or overseers to direct the work, it might be in hurrying the idle, or helping to roll away stones or take away the cuttings which sometimes impeded the workers too much, or in reloading those who let the mortar fall, while others finally who represented masons, prepared this same mortar mixed with rich earth which others had brought to them from the bottom of the river, and a little gravel collected on the bank.

"This gravel well hardened, or beaten together in this clay as much by their tails as by their feet, would afterwards become hard and keep sound at the bottom of the water as a cement capable of strengthening their dams, and a mortar fit to build their lodges with."

The exactness with which the various processes are here recounted is distressing to those who have watched in vain to see the beavers at work, for they are intensely shy; but the statement that "after

viewing the tree from every side the animal advances and begins cutting at the side opposite to that on which it is to fall," is hardly borne out by the curiously carved stump illustrated in this chapter. Then accounts are so frequently repeated that "the beaver never allows a tree to 'fork' in falling," that there appears to be some novelty in the discovery within a small area, of three

STUMP SHOWING THAT METHODS OF CUTTING DISAGREE.

trees completely cut through by the beaver, yet so interlocked in the branches of neighboring trees, as to preclude the possibility of their falling. Cases have even been observed where the beaver, not undaunted by a first failure to secure the tender branches and young twigs, has cut the tree through a second time, only to experience another failure. Apart from the audacity of so small an animal attempting to fell trees having a circumference of from thirty to fifty inches or more, and towering in the forests, even to a hundred feet in height, there is less that is marvelous in this than in any of his other works. Mr. A. D. Bartlett, the careful guardian of the many interesting occupants of the Zoological Gardens, Regent's Park, London, England, whose residence is next to the beaver's enclosure, has recorded with the utmost exactness the methods of tree-felling, in the Proceedings of the Zoological Society of London, November, 1862, and his observations are so invaluable to a just appreciation of the skill exercised in this, the first and simplest performance of the beaver, that it might be well to give his remarks at length. He says :—

" During one of the heavy storms of wind and rain that prevailed during the last month a large willow-tree was partly blown down. The limbs and branches of this fallen tree were given to many of the animals, and to them proved to be a very acceptable windfall. To the beaver, however, I wish to direct especial attention, as this animal has exhibited in a remarkable manner some of his natural habits and intelligence. One of the largest limbs of the tree, upwards of 12 feet long, was firmly fixed in the ground, in the beaver's enclosure, in a nearly upright position, at about twelve o'clock on Saturday last. The beaver visited the spot soon afterwards, and walking round this large limb, which measured 30 inches circumference, commenced to bite off the bark about 12 inches above the ground, and afterwards to gnaw into the wood itself. The rapid progress was (to all who witnessed it) most astonishing. The animal labored hard, and appeared to exert his whole strength, leaving off for a few minutes apparently to rest and look upwards, as if to consider which way the tree was to fall. Now and then he left off and went into his pond, which was about three feet from the base of the tree,

as if to take a refreshing bath. Again he came out with renewed energy, and with his powerful teeth gouged away all round the trunk. This process continued till about four o'clock, when suddenly he left off and came hastily towards the iron fence, to the surprise of those who were watching his movements. The cause of this interruption was soon explained; he had heard in the distance the sound of the wheelbarrow, which, as usual, is brought daily to his paddock, and from which he was anxiously waiting to receive his supper. Not wishing to disappoint the animal, but at the same time regretting that he was thus unexpectedly stopped in his determination to bring down this massive piece of timber, his usual allowance of carrots and bread were given to him; and from this time until half-past five he was engaged in taking his meal and swimming about in his pond. At half-past five, however, he returned to his tree, which by this time was reduced in the centre to about two inches in diameter. To this portion he applied his teeth with great earnestness, and in ten minutes afterwards it fell suddenly with great force upon the ground.

"It was an interesting sight to witness the adroit and skilful manner in which the last bite or two were given on the side on which the tree fell, and the nimble movement of the animal to the opposite side at the moment, evidently to avoid being crushed beneath it. Upon examining the end of the separated tree, it was found that only one inch in diameter was uncut; and it was of course due to the nearly erect position in which the tree was put into the ground that it stood balanced, as it were, upon this slender stem. After carefully walking along its entire length as it lay on the ground, and examining every part, he commenced to cut off about two feet of its length, and by seven o'clock the next morning he had divided it into three pieces: two of these he had removed into the pond, and one was used in the under part of his house.

"The beaver, the subject of the foregoing remarks, was presented to the Society by the Hudson's Bay Company, in the autumn of 1861, and was probably then about six months old. It is, no doubt, less vigorous than the large wild animals of this species, who would,

in all probability, bring down trees of much larger dimensions in a shorter time. In fact, it was evident that our beaver was a novice in the undertaking, as he more than once slipped and rolled over on his back in his eagerness to accomplish the task. It was impossible to witness the actions of this animal without being struck by the amount of skill and intelligence exhibited. When the space cut through towards the centre was too narrow to admit its head, its teeth were applied above and below so as to increase the width from the outside towards the centre, until the remaining parts above and below formed two cones, the apices of which joined in the middle. Again and again the animal left off gnawing, and, standing upright on its hind legs, rested its front feet on the upper part of the tree, as if to feel whether it was on the move. This showed clearly that the creature knew exactly what it was about."

Another keen observer was Captain Bonneville, who among his adventures in the Rockies and Far West, records his observations on the beaver, and refers thus to the subject :—

" I have often seen trees, measuring eighteen inches in diameter, at the places where they have been cut through by the beaver, but they lay in all directions and often very inconveniently for the after purposes of the animal. In fact, so little ingenuity do they at times display in this particular, that at one of our camps at Snake River, a beaver was found with its head wedged into the cut which it had made, the tree having fallen upon him and held him prisoner until he died."

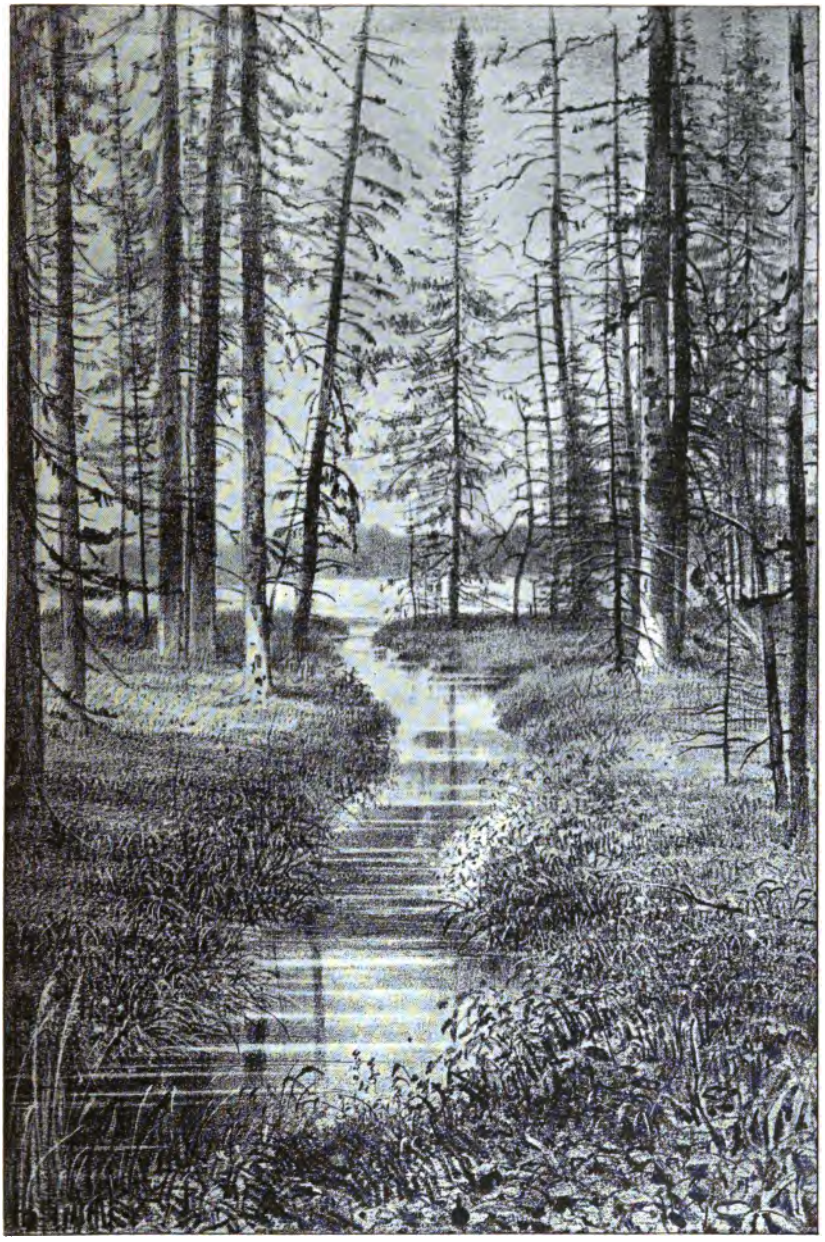
It will naturally be surmised that the chips cut during the tree-felling, must be in some cases of considerable size, but one can scarcely realize that many of the largest measure nine inches in length. These doubtless, are the work of fully adult beavers, whose knowledge of felling would be thoroughly matured. The stump in such cases is simply marvelous to contemplate, for the cutting power exhibited by so small an animal seems scarcely credible. Cuts many inches in length, sharply marking the width of the teeth give evidence of their wonderful adaptability, for no better work could be

accomplished by a most highly finished steel cutting tool, wielded by a muscular human arm.

The primary object of felling trees is to secure a supply of branches for the winter, when no other vegetable substance is obtainable. The fallen tree is stripped of its branches, and the stem is then cut into sections and rolled in good lumbering fashion into the pond; the site of the roll-way is generally a well marked feature in the landscape. The use to which these logs and the "whittle sticks" are turned, introduces the next accomplishment, the building of the lodge.

The beaver lodge is generally included in the list of marvels reserved for the investigation of those who visit beaver districts, and yet no greater disappointment awaits the enquirer than the first inspection of one. Somehow the minds of all lovers of Natural History become affected by the fabulous accounts concerning this structure, and it is a shock to stand for the first time before a pile of twigs, branches and logs, heaped in disorder on a small dome of mud, and to learn that this constitutes the famous lodge. Of course the superficial glance does not convey all that can be learnt in connection with this work, but it does most completely disillusionize the mind. On breaking through the upper walls, the interior is found to be similar to the general type of an animal's sleeping apartment, and has scarcely a distinguishing characteristic.

The theory is now generally accepted that the lodge is a development of the burrow or "wash" in the banks, and this gives another evidence of a close relationship between the beaver and the musquash. Starting with the simple burrow, the next step is the accumulation of logs and branches about its entrance, forming what is called a "bank-lodge." In places where the water is shallow towards the shores, a great advantage would be derived from extending this artificial covering of brush-wood, so that in time a natural evolution of the lodge disconnected entirely from the shore would take place, and form an independent and very convenient refuge from its landward enemies. Before leav-



THE BEAVER CANAL.

FROM LEWIS H. MORGAN'S "THE AMERICAN BEAVER AND HIS WORKS."

ing the subject we will quote the remarks of Mr. S. F. Baird, one of America's best informed naturalists; he says: "In my observations I have never seen the beaver lodge assume the marvelous features usually ascribed to it, and any I have met with can only be described as resembling an irregular pile of wood cuttings." Certainly anything approaching the exquisite beauty of workmanship which the common birds of our neighborhood display, need not be looked for, and in comparison with the nest-building accomplishments exhibited by the Oriole (*Icterus Baltimore*), the domestic arrangements of the beaver must be ranked among the ordinary works of lower intelligence.

But there are still points to consider in which the character of the beaver becomes most dignified, and the closer these matters are studied, the more admiration and wonder they excite. A beaver dam examined in the most matter of fact way, introduces a chain of thought destined to raise our esteem of the animal to the highest degree. Why should a dam be constructed at all? Undoubtedly, the object of the dam is to secure more water, and to preserve it for use through seasons when a natural supply cannot be relied on, and simple as the case may appear, it involves some most interesting points of hydraulic engineering, and presents not a few problems for discussion.

In the first place the beaver's power of transporting materials is decidedly limited, and therefore the dam must be built mainly of such stuff as the locality readily affords; so that besides the familiar form constructed chiefly of branches (as in the beaver enclosure on the Marquis of Bute's estate), there are grass, sand and mud structures, the last of which is depicted in the frontispiece of this volume.

The best explanation of what might have constituted the primitive form, is the circumstance of the felled tree blocking the stream, and in itself practically forming a dam, for the ordinary drift of the stream would soon fill in the smaller interstices, and thus the level of the water would be raised and maintained, answering every requirement of the colony. But there is an immense advance on this

theory in the construction of a mud-dam, for in this case the whole plan has to be conceived and perfected by the beaver. Every particle of material employed in a work needing hundreds of cubic yards, is gathered and placed by the small, though nimble fore feet of the beaver, and to complete the task, requires the highest skill and all the perseverance the animal has ever been supposed to possess. To enumerate the various forms assumed by the dam would be to catalogue almost every change of landscape effect, for the beaver always adapts himself to his situation, and most particularly in the case of the dam.

Mr. Lewis H. Morgan in his book "The American Beaver and his Works," gives special prominence to the various forms assumed by the dam, and devotes over fifty pages to this feature alone, his treatment being most interesting, yet by no means exhausting all that could be said.

One other accomplishment, which by some is considered more extraordinary than all the other works, is the formation of the canal. The evolution of this is, however, more easily traced and understood, nor does it involve such difficulties, nor exact such skill as the building of the lodge and the construction of the dam, though the perseverance of the animal is clearly exhibited in this undertaking.

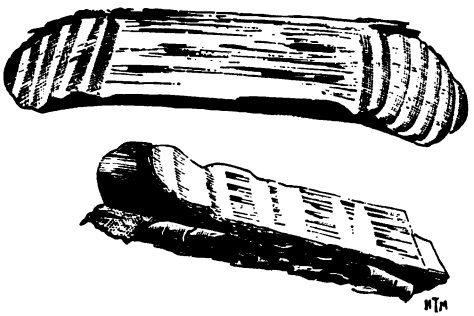
Admitting the fact that the beaver continually uses the same path from the water to the woods, both going and returning, and thus cuts or wears away the bank into a regular rut or path, into which the water follows and helps to wash away a little earth every time the path is used, the possible beginnings of the canal may be seen. It must not, however, be supposed that this explanation exhausts all the skill necessary to account for the canal; it only suggests a rational origin for the work, and when it is known that in the log roll-way (referred to at the commencement of this chapter), the beaver carefully clears away every obstruction of stick or stone, it is only applying the same idea on a larger scale to the pathway which he invariably uses and which soon becomes a waterway or canal.

Though the beaver-canal is not so popularly known, and is more easily reconciled with instinct, it must not be supposed that it is a minor feature in the performances of this animal; it is almost incredible that a work so apparently artificial, could have remained unnoticed till 1868, when Mr. Morgan published his valuable notes, so amply illustrating the works of the American Beaver.

In 1885, was added the testimony of the Marquis of Lorne, who, more perhaps than any of our Governors, made himself acquainted with our Dominion, and acquired an admiration for the Canadian Beaver. In his beautifully edited volume, "Canadian Pictures, with Pen and Pencil," he devotes several pages to the beaver, and therein records his personal observations of the beaver-canal. He says:

"In reaches containing islands, I have seen the island cut clean through by a water-ditch, so that the animals and their young, could swim from the pool on one side of the island to that on the other."

A slightly different form is that in which a waterway is kept open through the beaver meadows, but this is doubtless accounted for by the same faculty for cleaning the roll-ways and paths. When the colony has been settled quietly for many years and has cut all the desirable trees close at hand, and further supplies are sometimes hundreds of yards away, the necessity for clear roll-ways and good canals is obvious.



BEAVER CHIPS.

ECONOMIC CONSIDERATIONS.

THE BEAVER MEADOW.

'Tis a meadow green as an emerald's heart,
  In the heart of an emerald wood,
And a crystal stream doth idle and dart,
  Through the sun-swept solitude.
The orioles glance like flashes of fire
  From foliaged limb to limb,
And the harsh frogs pipe in a ceaseless choir
  From the marsh when day grows dim.

When the grey cold dawn in her robes of mist,
  O'er meadow and wood and stream,
Looks forth from her tower of amethyst,
  She sees the wild duck gleam
In the slender reeds that have waded out,
  Far out in the sinuous brook,
And she hears the loon, like a wary scout,
  Shrill keen from some secret nook.

Long years ago, when our fathers first,
  Fearless and full of hope,
With love of venture and wealth athirst,
  O'er river and mountain slope
To this woodland came, a lakelet lay
  As bright as a burnished shield,
Where now the rivulet waters play,
  And the loud frogs pipe concealed.

And a wondrous town with its sunward domes
  And wonderful people stood
Where these deep-mouthed frogs have now their homes
  And the wild ducks lurk and brood.
Not the carven fronts nor the lordly halls
  Of the ancient Aztec sway,
More wonderful were than the stately walls
  Of this town now passed away.

Not a listless brain, nor an idle hand
  Was there in all that town,
But strong defenses the people planned
  And hewed the great trees down.
The rippling river, with wondrous art,
  In barriers huge they pent
And made their homes in the new lake's heart
  And dwelt therein content.

But woe to the town and its people all,
  Earth giveth no deathless joy !
Wherever the white man's foot doth fall
  The weak it doth destroy.
The merciless, covetous Spanish horde
  Who came to the Aztec land
Put its people and chiefs to the ruthless sword,
  Its towns to the blazing brand.

And here in this northern wilderness
  This wonderful beaver town
That baffled the elemental stress,
  Before our sires went down.
Its stately domes and its barriers vast,
  Its sinuous streets, its lake
The hunters destroyed and overcast
  For a little riches sake.

They slaughtered the noble beaver kings
  And loosened the fettered stream,
And now the reeds, like a thousand strings,
  With music as in a dream
In the night wind mourn the departed lake
  And the stately beaver town,
While the rippling waves in the rushes break,
  As the stream goes eddying down.

And musing here, on the grassy site
  Of the beaver colony,
My soul is carried in fancy's flight
  To the site of Ville-Marie,
Where the Hochelagans, or "beaver race
  Of Indians" dwelt of old,
Their name renowned from their mountain's base
  To where the ocean rolled.

"Hochelaga," the beaver meadow meant,
And where the beaver dwelt,
Later, the Frenchman pitched his tent
And before heaven knelt.
The wondrous skill and the council sage
And the beaver's love of toil
Became as well his heritage,
As the broad and fertile soil.

So honor be to the beaver's name,
And praise to the beaver's skill,
And in the labors that make for fame
May we all be beavers still.
This emerald mead in the emerald heart
Of a fair umbrageous grove,
Of the nation's life is a glorious part,
And merits its purest love.

—*Arthur Weir.*

FUR TRADERS "SQUATTING" ON THE PRAIRIE NEAR FORT GARRY, 1876,

NOW THE CITY OF WINNIPEG.

CHAPTER VIII.

BEAVER MEAT, A STAPLE FOOD SUPPLY — BEAVER COATS, MITTENS AND MOCCASINS—THE FAT AS AN OINTMENT—LUXURIOUS USES OF CASTOREUM—BEAVER CHISELS—THE VALUE OF THE BEAVER-POND, AND BEAVER-MEADOW—BEAVER TRADE THE FOUNDATION OF OUR PRESENT COMMERCIAL GREATNESS.

Man's first and constant need is food, and in all times and places, the question as to food supply must be settled before other concerns are entertained. The lower animals almost invariably exhibit a complete disregard in the matter of preserving supplies; they consume at sight, all that it is possible for them to do, even to gluttonous waste, and then, are prepared to face starvation before another gorge is obtainable. In this respect we find the lower orders of mankind very similar, and it marks the advancing scale of development, when any race shows signs of storing food or preserving a food supply. The Indian of North America makes an exceedingly interesting ethnological study, for his ways are singularly typical, and amply repay investigation. Though constituting one grand race, the many varieties of climate and circumstance with which he has had to contend, produce marked difference of character. We have already referred to some of the distinguishing characteristics of the Indian tribes, and those which now claim our attention are the settled tribes of the northern districts. It is of these that writers have recorded the fact of their settlements being in close proximity to the beaver colonies, and the great economy of the beaver to them is a subject of much importance.

Man as an omnivorous feeder requires a varied diet, and while the vegetable kingdom contributes very largely to his sustenance, he has ever been dependent on herbivorous animals for a sufficient pro-

portion of meat to keep him healthy and help to develope his strength. This was the cause why primitive man was almost invariably a hunter, and the uses he has made of the skin and other parts have been incidental to his first want, that of meat. It must then be evident that those animals which most conveniently supply the imperative demand for meat are of first importance to man, and in this category we find the beaver serving pre-eminently the wants of the Indian and the early travellers in America. It is well to remember that the highways of America were until very lately her waterways; the birch bark canoe having accomplished the long journey from Montreal to the Arctic Ocean, by way of the Ottawa and French rivers, the Saskatchewan and the Mackenzie; and it is not too much to assert that this and many other similar accomplishments depended for their success on the supply of beaver meat obtainable by the way.

Testimony is so universally favorable as to the excellent quality of the meat, that it would be heresy to dispute its merits, particularly as its reputation was earned centuries ago in Europe, and in America there exists a kind of proof which is very convincing. It is said, in regard to the methods of preparing the dish for table, that the favorite plan was to roast the animal in the skin, and when there were plenty of beavers to be had, it did not seem to have attracted the attention of the traders, that a few skins were thus destroyed by their "couriers;" but in later days, when competition increased as the beavers decreased, every skin was in eager demand, and consequently we find frequent mention of the difficulty to prevent the destruction of the skin, by roasting it together with the carcass.

The meat is tender, and at most seasons very sweet tasted, not unlike pork; and so generally esteemed, that even now, it is often sold at our markets and not infrequently it appears on the "bill of fare" in country hotels. In earlier times it was dried and pounded to meal or powder, for convenience of carriage and preservation.

The members of the "Beaver Club" in Montreal, used to serve a roasted beaver at their banquets, with all the dignity observed in serving the royal dishes in the old baronial days of England. The

early missionaries found in the beaver a valuable addition to their "Lenten dietary," but it is a pity that this privilege should have required the belief that the animal lived on fish, for many a one has been destroyed, and the attractions of his skillful labor been effaced, under the supposition that it was necessary to exterminate the beaver in order to preserve the fish.

Thus far the meat generally, has been referred to without regarding the delicious morsel which the tail affords. To recognise the high degree in which this dish was appreciated, it is necessary to imagine the limited choice of food, to which the trader was forced to submit while away from civilization, and also to make allowances for the stimulating effect an open-air life would have on the appetite. The flavor and appearance resemble that of the choicest bacon, and it is worthy to rank with most modern luxuries, while it may safely be said, that the forests do not furnish its equal as a delicacy. It now only remains to add that in several cases it has happened among the men of trading parties, whose provisions were all exhausted, that the bales of beaver skins, have been opened and divided as rations, and when roasted, they appeared to furnish not only sustenance, but were even regarded as a palatable meal.

When the question of food was a settled matter, the next concerns were clothing and shelter, and in both these aspects the beaver has been an important factor. Frequent reference is found to the leather made from the skin of the beaver, which is described as being very tough and strong, and eminently suitable for the making of moccasins and mittens, though it was of course applied, generally, to such purposes as the making of the "mattas" or leather stocking, waist belts and fire-bags, shoulder belts and quivers; while the toughness of the leather made it very useful when cut into thongs. In places such as the country of the Hurons, where the beaver supplied all the wants of the tribe, it is but natural to suppose that its leather would be converted into the "tepee" or tent covering, as in the Buffalo districts where the tents were invariably made of Buffalo leather.

All these purposes required the leather alone with the hair removed, but there were also ways of tanning the skin with the hair on, the result being an article which for general utility has not been surpassed in all time. The quantities of "Coat-Beaver" and of "Mitten-Beaver," gathered and exported to Europe, show how much the article was used in this way by the Indians until the introduction of the blanket from Europe, which has remained in fashion among them to this day, while it is doubtful if a beaver coat or "foggey" of the old style, has ever been seen by the present generation. It consisted of several skins, dressed softly, and then sewn together, making virtually a beaver blanket, and in many cases the leather side of this wrap was gorgeously decorated with designs painted or colored with native dyes, or in the case of the elders of the tribes, the decoration consisted of embroideries in porcupine quills or even wampum beads.

The Indians made an ointment from the fat of the beaver which was supposed to have many curative and medicinal properties, not the least among which was its power to prevent frost bites, by being applied to the exposed parts of the body, which thus anointed would not be affected by the most extreme cold. This quality alone would have made the beaver of great economic value.

Nothing, however, has made the animal so prominently important as its castoreum, which, through the entire history of the Indians, has been highly valued, for in addition to its medicinal value it was also frequently used as a luxury. It is an historical fact that the North American Indian was a great devotee of the pipe, and his mystic conception of its high office in social affairs, is clearly demonstrated by the great importance attached to the ceremony of smoking at council meetings the stone pipe or calumet—the "Pipe of Peace." Tobacco was not always to be obtained, and at times recourse was made to various other vegetable substitutes, thus the inner bark of trees was much used in the North West, and was called "killikinic," while each locality would furnish its variety sometimes changing with the seasons. In such cases castoreum was used to add flavor to the compound, and it was supposed that it

imparted a peculiarly soothing effect to the mixture; be that as it may, it is easily conceivable that the palate could become much attached to the pungent flavor which castoreum affords.

Of all the uses of the beaver to the Indian, none was more indispensable before the advent of the white man, yet none was more immediately or more completely supplanted, than the beaver-tooth chisel. The tooth was well adapted for the uses to which the Indian applied it, and he could easily keep up the supply. The North American Indian never used iron, nor did he even possess the pol-

BEAVER-TOOTH CHISEL.

FROM A SPECIMEN IN THE BRITISH MUSEUM.

ished flint implements which distinguish the Neolithic races. Copper, obtained superficially from the rich deposits on the shores of Lake Superior, was used in a very limited way, mostly as decorations, and the Indian seems to have contented himself with wood, horn, bone and chipped flint; all of which, with the exception of the flint, yielded freely to his very hard and sharp beaver-tooth chisel. The early accounts of the trade, preserve to us the list of articles which were offered to the Indian in exchange for his peltries, and the merest glance at them suffices to show how rich the Indian must have become in his possession of knives, hatchets, awls, and in fact everything that his primitive life required. Though his native ingenuity was such as to produce the birch-bark canoe, the snowshoe, moccasin and other adaptations, with the help of bone implements alone, yet we can imagine he was not slow to replace his crude tools for the highly finished outfit so readily obtainable, and the beaver chisel may be held as the most interesting example of the past economy of the beaver.

Incidental to the uses of the beaver we must not overlook its services in preserving a water supply. Water is as indispensable to the beaver as it is to man, yet the former was better adapted to preserve it, than the early settler. The dams were often a mile in length and constructed to form reservoirs comparable only to great lakes, and it was impossible to break away these dams without materially altering the local aspect. Droughts and parched lands soon followed in districts where once were beautiful lakelets and abundance of vegetation. On the banks of the Rocky Mountains where now our settlements are quickly being planted, it is reported that the beaver has been protected expressly to preserve the water supply.

Where beaver colonies had lived for many years undisturbed, the shallow waters above the dam became gradually overgrown with vegetation, and this with the accumulation of chips, branches, leaves and other vegetable refuse, has given us many a rich acre. It is an interesting fact of local history, that the name of the Indian village which occupied the present site of the city of Montreal, is equivalent to the English "Beaver Meadow," while, both in the eastern and western suburbs of Montreal, the evidences of beaver meadows are unmistakable, and where now is the busy thoroughfare known as Craig street, once was the beaver canal.

Indeed, it is not asserting too much for the past greatness of the beaver trade, to say, that where the early traders halted and built their trading posts or forts, there civilization has progressed, and thus unconsciously, the foundations of our magnificent cities were laid, while some can claim a gradual development, direct from the early beaver colony.

CHEMICO-MEDICAL PROPERTIES.

"You may take sarza to open the liver; steel to open the spleen; flowers of sulphur for the lungs; castoreum for the brain; but no receipt openeth the heart but a true friend, to whom you may impart griefs, joys, fears, hopes, suspicions, counsels and whatsoever lieth upon the heart to oppress it, in a kind of civil shrift or confession."

—*Bacon.*

CHAPTER IX.

CASTOREUM ALONE VALUED FORMERLY—A PANACEA IN EARLY MEDICINE—COMPOSITION OF EUROPEAN AND AMERICAN VARIETIES — EARLY TREATISE ON THE MEDICINAL IMPORTANCE OF THE BEAVER—THE SECRET OF SOLOMON'S WISDOM.

The earliest references we have to the beaver in history date back to 500 B.C., when Hippocrates mentioned it in connection with the medical uses of castoreum, and from the fact that Pliny wrote that the creature's life was spared on the surrender of the valuable pouches of castoreum, we gather that it was for these alone that the animal was hunted. We know for certain that a thousand years elapsed before the felting property of the fur was discovered.

In 1685, a treatise on the medico-chemical uses of the beaver appeared, and from it we learn that all the various parts of the animal were accepted specifics for most of human ills, and with the great value attached to its curative powers, we can understand how keenly it must have been hunted. When some of the supposed medicinal powers are reviewed, it will seem ridiculous that such ideas could ever have been seriously entertained, but the belief in the miraculous properties of the castoreum is still shared by so many, that the crude article is even now regularly sold in our drug stores, and its value steadily increases, so that quotations of from $8.00 to $10.00 per pound are current for rough Canadian "Castors," as the pouches are sometimes called, while the Russian article is even more valuable. About six pairs of pouches weigh a pound, and in size and appearance they are well described as resembling dried and withered pears. The following analysis taken from Watt's "Dictionary of Chemistry" shows how greatly the two differ:

ANALYSIS.

	Russian Castoreum.	Canadian Castoreum.
Volatile oil	1.00	2.00
Castoreum resin	13.85	58.60
Cholesterin	——	1.20
Castorin	0.33	2 50
Albumin	0.05	1.60
Glutinous substance	2.30	2.00
Extract sol. in water and alcohol	0.20	2.40
Carbonate of ammonium	0.82	0.80
Phosphate of calcium	1.44	1.40
Carbonate of calcium	33.60	2.60
Sulphates of potassium, calcium, magnes:	0.20	——
Gelatinous subst. extracted by potash	2.30	8.40
Gelatinous subst. extracted by potash soluble in alcohol	——	1.60
Membranes, skin, &c.	20.03	3.30
Water and loss	22.83	11.70
	98.95	100.10

Other special analytical tests have found traces of many other substances, but not, however, in any appreciable quantity.

In the treatise above referred to, it is stated that the animal was hunted for "its skin, its fat, its blood, its hair, its teeth, and especially for its pockets or tumours which are placed in the groins, and experience has shown that there is no part without its uses in medicine." Then follow in order the various remedies attributed to each part, and though the whole volume is of intense interest, only a summary of its contents can be given here.

"The skin of the beaver is of great utility in colic, in madness, and in spasms; it cures bed sores; and consumption in children.

"The fat of the beaver is of no less utility in medicine, and it is efficacious in all maladies which affect the nerves. It is useful in epilepsy, and prevents apoplexy and lethargy; stops spasms and

J. F.

CASTOROLOGIA

explicans

Caſtoris animalis naturam & uſum medico-chemicum

Antidhac

à

JOANNE MARIO

Bollenſi & Phyſico Ulmano poſtea Auguſtano celeberrimo labori inſolito ſubjecta.

jam vero

Ejusdem Auctoris & aliorum Medicorum obſervationibus luculentis ineditis, adfectibus omiſſis, & propria experientia parili labore aucta

à

JOANNE FRANCO.

S. Chryſoſt. in Matth.

Invidia ſemper ſibi eſt inimica; nam qui invidet, ſibi ignominiam facit; illi autem cui invidet, gloriam parit.

AUGUSTÆ VINDEL. M DC LXXXV.

Typis Koppmayerianis,

Impenſis Viduæ Theophili Gœbelii.

(PHOTO.-COPY OF TITLE PAGE OF THE ORIGINAL CASTOROLOGIA.)

convulsions, and is of great help in giddiness, toothache, asthma, dysentery and strains.

"The blood of the beaver is an efficacious remedy for epilepsy, for on giving it to a beggar boy who was subject to this malady, he was free from it for six days. I made him take some of it a second time, and I have never seen him since, which has made me believe that he was perfectly cured.

"The hair of the beaver is employed to stop hemorrhages of some kinds, as I have lately proved after a surgeon had uselessly employed styptics.

"The teeth of the beaver are attached to the necks of children to facilitate the cutting of their teeth. They are also reduced to powder and given with much success in cases of pleurisy, and they preserve children from epilepsy if taken in some soup.

"Castoreum is a proved remedy for earache, and is not less efficacious in deafness. It disperses abscesses when applied externally, and is the most powerful remedy that we have for the pains of gout.

"Castoreum is a very useful remedy in headaches; and is not less efficacious in epilepsy, provided that it be employed immediately. Those who are subject to colic or pains, receive solace from it, and it is a useful remedy for toothache. I have very often employed castoreum with success in headache, and I have been surprised at the promptitude with which it relieved it. Castoreum also alleviates tumours of the liver, being applied externally, as I have the opportunity of proving for myself every day.

"The wife of a 'mender of old clothes' was so much inconvenienced by sciatica, that she could get no rest; I had, however, the happines of curing her with castoreum.

"Nothing is truer than that it is very difficult to arouse a lethargic person from his stupor; I can, however, boast of having hap-

pily cured this malady with castoreum. Nobody is ignorant of the numerous maladies the spleen can cause in the human body by its swelling and painfulness, which I have often dispersed with the same remedy.

"A girl whose memory was completely lost through a malignant fever, recovered it again with the help of castoreum, to the great astonishment of her parents, who thanked me a thousand times.

LOWER INCISOR TOOTH OF THE BEAVER.

"Castoreum does much good to mad people; and those who are attacked with pleurisy give proof of its effect every day, however little may be given to them. Castoreum destroys fleas; is an excellent stomachic; stops hiccough: induces sleep; prevents sleepiness; strengthens the sight, and taken up the nose it causes sneezing and clears the brain.

"Although authors who have written of venemous animals, put castoreum under the head of poisons, it is used as an antidote to the sting of scorpions, spiders and the Tarantula, the bad effects of opium and even against the pestilence.

"As all these remedies have a limited virtue, and can even sometimes become injurious, one ought not to be surprised if castoreum does not always produce the anticipated result.

"These are now the uses of castoreum in *Medicine*, and I have myself witnessed most of the effects of which I have spoken, thus I give it no more praise than it merits. The doctors of Ausbourg have introduced it into thirty of the best compositions of the Pharmacopœia.

"A Jew of my acquaintance who visited me occasionally, knowing that I studied this work, communicated to me a secret which he had learnt from his ancestors, who, themselves got it from Solomon who had proved it. He assured me that in order to acquire a prodigious memory and never to forget what one had once read, it was only necessary to wear a hat of the beaver's skin, to rub the head and spine every month with that animal's oil, and to take twice a year, the weight of a gold crown-piece of castoreum.

"As this has much affinity with my subject, I did not wish to omit it, though I allow everyone the liberty of believing what he will concerning it.

"If the reader find some fault in my work, let him remember that I am but a man, and my knowledge is imperfect; and if he discovers in it anything useful, let him return thanks to Him from whom all our knowledge comes."

DRIED CASTOREUM POUCHES,
POPULARLY CALLED
"BARK STONE" OR "BEAVER CASTORS."

IMPORTANCE IN TRADE AND COMMERCE.

"In 1693 the collection of Beaver at Fort Michilimacinac was safely brought to Montreal under heavy convoy and thus saved the country from utter poverty . . . . . .

. . . . . .

"In the eighteenth century Canada exported a moderate quantity of timber, wheat, the herb called ginseng, and a few other commodities; but from first to last she lived chiefly on beaver skins."

—*Kingsford's History of Canada.*

CHAPTER X.

EARLY HISTORY OF THE FUR TRADE—THE FRENCH RÉGIME IN AMERICA, 1603-1670—NEW NETHERLANDS—FORMATION OF THE HUDSON'S BAY COMPANY — FRANCO-BRITISH STRUGGLE, 1670-1760 — BEAVERS THE MEDIUM OF EXCHANGE—BEAVER TALLIES AND BEAVER TOKENS—ANARCHIC PERIOD, 1760-1784—ORGANIZATION OF THE NORTH-WEST COMPANY — ANGLO-CANADIAN RIVALRY, 1784-1821 — AMERICAN FUR TRADING COMPANIES—THE REIGN OF THE GREAT MONOPOLISTS, 1821-1869—THE USEFULNESS OF THE BEAVER COMPLETELY SUPPLANTED.

Though primitive man the world over clothed himself in furs, and retained his preference for this covering until he was semi-civilized, it was only at a very late date that his admiration of the rich colors and soft textures of furs returned.

Fur trading as an established industry dates from the fourteenth century, when Italy led the world in her mercantile resources and at that period commanded a boundless traffic.

Attempts were made to establish a traffic in furs with America in 1549, but it was not until 1603, that a regular system of trade under Royal Charter began; and until 1626, the development of the trade was much retarded by the entire privileges being controlled by an exclusive company, headed by M. de Chanion, whose sole object was personal gain. Northern Asia was at that time the chief supply market of Europe.

In 1623, the Dutch settlements in America (New Netherlands) had so far appreciated the importance of the traffic, as to adopt the

beaver in their first public seal, and it was present continually through all the political alternations to the reign of George II.

In New France a change was made in 1628, and a larger company was formed, entitled "The Company of the One Hundred Partners," who with trifling changes directed this enormous interest until 1663. The first regular fur trading establishment was set up at Tadousac on the River Saguenay in 1603; the next at Stadacona (Quebec) 1604, then Three Rivers, and lastly Ville Marie (Montreal) in 1611. For many years Three Rivers was a much more important post than Montreal, but about 1640, the change set in, and from that date to the present, Montreal has unquestionably been recognized as the mercantile capital of the country, and thither for many years most of the inhabitants of the continent carried their furs.

The *mission* and the *beaver* were too frequently associated by the early missionaries. They made the fur trader and the proselytizer one. Denonville writes "I receive letters from the most distant quarters, . . . where they propose wonders to me by establishing posts for the *Mission* and for the *beavers* which abound there."

On the second day of May 1669, His Majesty Charles II. granted Royal Charter to the Governor and Company of Hudson's Bay; whereby the company at their own cost and charges having undertaken the "discovery of a passage into the South Sea," were made masters of the "Lands, Countries, and Territories; Coasts and Confines of the Seas, Streights, Bays, Lakes, Rivers, Creeks and Sounds, together with the whole Trade and Commerce of these parts," for which privileges the adventurers promised to give yearly "Two Elks and Two Black Beavers, whensoever, and as often as We, Our Heirs, and Successors, shall happen to enter into the said Countries, Territories and Regions hereby granted."

Thus originated one of the grandest commercial enterprises America has ever known, and there are features in its history which have never been surpassed, at any time, in any country. They most faithfully attempted to perform their contract with the British

Throne—the discovery of the North West passage—as the fate of Sir John Franklin will ever attest; and in addition reaped handsome rewards, from the rich traffic in peltries.

To gather some idea of the universal importance of the beaver in those days, the condition of affairs can be easily reviewed by reference to some of the early documents, from which we find that not only was all merchandise valued in beaver skins, but that all other skins obtained in the country which were offered in barter, were also reduced to the value of beaver skins, so that beavers were the only medium of exchange. In 1774, Arthur Dobbs published "An Account of the Countries Adjoining to Hudson's Bay, in the North-West Part of America," the principal object of which was to suggest certain measures for a better control of the trade, "whereby the French will be deprived in a great measure of their Traffick in Furs, and the communication between Canada and the Mississippi be cut off." The following notes are from this valuable source:

"Beaver being the chief Commodity received in Trade, in these Parts, it is made the Standard to rate all the Furs and other Goods by.

3 Martin Skins	as	1 Beaver
2 Otters	"	1 or perhaps 2
1 Queequeehatch	"	1½
1 Fox	"	1 unless ext. then 2
1 Cat	"	2
1 Moose	"	2
2 Dear Skins	"	1
1 Wolf	"	1
1 Pound Castorum	"	1
10 Pound Feathers	"	1
8 Pair Moose Hoofs	"	1
4 Fathom Netting	"	1
1 Black Bear	"	2
1 Cub	"	1
1 Weejack	"	1

STANDARD of TRADE carried on by the Hudson's Bay Company at Albany Fort, Moose River, and the East Main, as it stood in the year 1733, Beaver Skins being the STANDARD.

Beads *le Milk*	½	pound	for 1	Beaver
Do. coloured	¾	"	" 1	"
Kettles, Brass	1	"	" 1	"
Lead, black	1	"	" 1	"
Gun-Powder	1½	"	" 1	"
Shot	5	"	" 1	"
Sugar	2	"	" 1	"
Tobacco, Brazil	1	"	" 1	"
Ditto Leaf	1½	"	" 1	"
Ditto Roll	1½	"	" 1	"
Thread	1	"	" 2	"
Vermillion	1½	ounce	" 1	"
Brandy	1	gallon	" 4	"
Broad Cloth	1	yard	" 2	"
Blankets	1		" 6	"
Bays	1	yard	" 1	"
Duffels	1	"	" 1½	"
Flannel	1	"	" 1½	"
Gartering	2	"	" 1	"
Awl Blades	12		" 1	"
Buttons	12	Dozen	" 1	"
Breeches	1	Pair	" 3	"
Combs	2		" 1	"
Egg Boxes	4		" 1	"
Feathers, *red*	2		" 1	"
Fish-Hooks	20		" 1	"
Fire Steels	4		" 1	"
Files	1		" 1	"
Flints	20		" 1	"
Guns	1		" 10, 11, 12, Beavers	
Pistols	1		" 4 Beavers	
Gun-Worms	1		" 4	"
Gloves, *Yarn*	1		" 1	"
Gogles	2		" 1	"
Handkerchiefs	1		" 1½	"
Hats, *laced*	1		" 4	"
Hatchets	2		" 1	"
Hawk Bells	8		" 1	"
Ice Chizils	2		" 1	"
Knives	8		" 1	"

Looking-Glasses	2		for 1	Beaver
Mocotagaus	2		" 1	"
Needles	12	L 2. S 2. & Glov.	" 1	"
Net-Lines	2		" 1	"
Powder Horns	2		" ½	"
Plain Rings	6		" ½	"
Stone ditto	3		" 1	"
Runlets	1½		" 1	or 1½ Beaver
Scrapers	2		" 1	Beaver
Sword Blades	2		" 1	"
Spoons	4		" 1	"
Shirts	1	White & check'd	for 1	Beaver
Shoes	1	Pair	" 1	"
Stockings	1	"	" 1¼	"
Sashes, *Worsted*	2		" 1	"
Thimbles	6		" 1	"
Tobacco Boxes	2		" ½	"
Tongs	2	Pair	" 1	"
Trunks	1		" 2	"
Twine	1	Skane	" 1	"

NOTE.—That the standard at York Fort and Churchill is much higher, the French being not so near these places, and therefore can't interfere with the Company's Trade so much as they do at Albany and Moose River, where they undersell the Company, and by that means carry off the most valuable furs."

The number of beavers gathered and exported annually by the Hudson's Bay Company at this time was estimated at about 15,000 beaver coats and 175,000 skins, and with regard to the supply collected by the French, we quote M. d'Auteuil, who valued "the export from Canada, in 1715, of over 100,000 skins, as amounting to two million francs," the trade being then in the hands of the "Company of Canada."

Farther south, complaints were made of the contest that existed between the governments of Canada and of the Province of New York "about the Beaver trade," notwithstanding which, the collection exported from New York amounted, at a minimum, to 80,000

skins annually. Governor Thomas Dongan having an eye to the income derived from this source, suggested that "It will be very necessary for us to encourage our young men to goe a beaver-hunting as the French doe," and in the same report he fixes "the custom or duty upon every beaver skin commonly called a whole Beaver, ninepence."

"And that all other fur and peltry be valued accordingly, that is, for two half beavers, ninepence; for four lapps, ninepence, &c., and all other peltry to be valued equivalent to the whole beaver exported out of the province, (bull or cow hides excepted)."

These rates were much lower than formerly when the export duty had reached "one shilling and threepence on beaver skins and other peltries proportionally," and it should be remembered that money in those days was relatively of much greater value.

TALLY FOR FIVE BEAVERS.

Fabulous prices apparently paid for beaver were really bribes for Indian patronage, and gave rise to the Indian expression "underground" or secret presents.

The custom of valuing all skins in their equivalent to beavers, led to the habit of marking each package with its relative value, by attaching a small tally-stick such as shown in the accompanying engraving, and thus indicating, for the convenience of barter, which packages should be turned over to the trader in settlement of purchases; so effective has this system been, that in many places to-day in the interior or far distant trading posts, it is still followed.

At some points the entire collection of furs is at once assumed by the company, for which they give beaver tokens, and these in their turn are soon transferred to the company, for the various wants of the trapper.

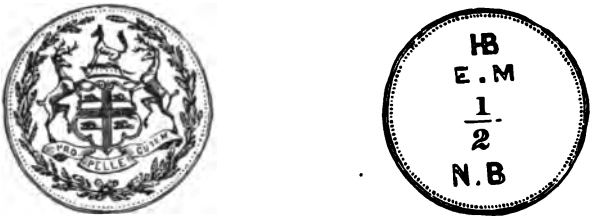
The exact details of this method of trading, form part of the records of an enquiry instituted many years ago, to ascertain how the Hudson's Bay Company could do justice to the Indian, and still pay dividends of over fifty per cent. per annum. It was explained that the Company put only a fair advance on the cost laid down in each "Post," "Fort" or "Factory" of all such goods as came under the heading of necessaries; but for luxuries they felt justified in charging all the Indian could afford to pay, so that they did him no injustice by taking a beaver skin, worth twelve shillings in exchange for a colored cotton handkerchief, which originally only cost a couple of pennies. The records describe the mode of trading as follows:

"An Indian arriving at one of the Company's establishments with a bundle of furs, which he intends to trade, proceeds, in the first instance, to the trading room; there the trader separates the furs into lots, and, after adding up the amount, delivers to the Indian a number of little pieces of wood indicating the number of made-beaver to which his hunt amounts. He is next taken to the store room, where he finds himself surrounded by bales of blankets, slop-coats, guns, knives, powder-horns, flints, axes, &c. Each article has a recognized value in made-beaver. A slop-coat, for example, is twelve made-beavers, for which the Indian delivers up twelve of his pieces of wood; for a gun he gives twenty; for a knife, two; and so on, until his stock of wooden cash is expended."

"Made-beaver" and "whole-beaver" were local technical terms employed to denote the fixed unit of the locality, and were associated with beavers in the sense that a skin from an adult beaver, prime in quality and in perfect condition was the actual unit or "made-beaver," while in practice, beaver skins themselves were converted into "made-beavers," varying with the generosity of the buyer or the demands of the seller, so that in some cases two small beaver skins would equal only one "made beaver."

In some instances a difficulty was experienced in arranging for the fractional parts of the "made-beaver," as the tally sticks or

tokens in existence did not provide for such sub-divisions of value, and in 1854, Mr. George Simpson McTavish, then in charge of Albany Fort, suggested the issue of metal tokens to meet the requirement. With the suggestion which was forwarded to London, Mr. McTavish sent sketches of the proposed tokens, bearing on the obverse, the coat of arms of the Company,—a shield quartered, with a beaver in each quarter, a fox for the crest and two stags as supporters; underneath, the motto "Pro pelle cutem;" the whole surrounded by a wreath of oak leaves; and on the reverse the monogram H. B.; the initials E. M., for the district "East Main," for which they were specially required; then the fractional divisions



THE HUDSON'S BAY COMPANY'S BEAVER TOKEN.

⅛, ¼, ½, and also 1, for the full unit; below which, in the original design appeared the letters M. B., in monogram as it was customary to write them, thus MB, signifying "made-beaver" The design was approved of, the dies ordered, and in due course the tokens were forwarded for distribution among the posts in the East Main district, when with disappointment it was found that the monogram M.B., had been misinterpreted by the die-cutters as the separate letters N.B., incorrectly drawn. This curious error has led to the belief that the "made beaver" was sometimes called a "natural beaver," but this was not the case.

The extreme value attached by numismatists to the beaver tokens of the North West Company, prepared the way for the following extraordinary piece of fraud. Some years after the circulation of the

Hudson's Bay tokens, a specimen reached Quebec in the possession of the captain of a trading schooner from Labrador. As usual, the cargo contained many valuable furs, and in bargaining for these, the token passed over to a young fur merchant of Quebec. No special value being attached to it in his hands, it was not a difficult matter for a persevering acquaintance to beg it, and become its owner, which, however, was only accomplished by misrepresentations; then in Montreal it was exhibited, with a wonderful story as to its antiquity and rarity, and finally it was sold to a member of the Numismatic Society for $110.00, being the first specimen ever seen and supposed to be unique and to date back earlier than the North West tokens. Whole sets of the Hudson's Bay tokens are not uncommonly met with now, but they are always valued as among scarce examples.

In 1664, the English had dis-possessed the Dutch of their American provinces, and thus encroached on both sides of Canada, or New France, allying with the Indians, and interfering materially with the plans of the French monopolists. Much exclusiveness on the part of those autocrats had driven many of the traders to settle among the English, where trade was more free, and the profits greater. The French government took cognizance of the superiority New York was acquiring, and changed the manner of carrying on the fur trade. Decrees emanated from the French Court, which directed the grading and fixed the prices to be paid for the several assortments of beaver; and the Court also undertook the management of the trading posts at Frontenac (Kingston), Niagara and Toronto. As a result, all refuse, unsaleable furs and skins taken in summer, became the property of the King, and these furs, &c., "bought without examination, were carelessly deposited in warehouses, and eaten up by the moths." The fur trade of Canada continued for some time in this way; brandy was working havoc among the Indians, and the preparations were perfect for the petty warfare soon instigated by the jealousy between the English and French traders, The French had already crossed by way of Lake St. John, and attacked the Hudson's Bay Company's forts, and the English had attempted the capture of Quebec; when in 1688, the Revolution in England tempted Frontenac, Governor of Canada, to

undertake the entire overthrow of the English in Hudson's Bay, and for years the warfare was maintained, till in 1696, the English Government gave assistance to the Hudson's Bay Company and the struggle became of national interest.

The treaty of Utrecht brought about peace in America, as it did in Europe, and the fur trade began to increase rapidly and to return enormous profits. The annual returns from Prince of Wales Fort alone reached 20,000 beaver skins, and though at that time the exports included a long list of valuable articles, the quantity of beaver skins represented two-thirds of the entire value. A most extraordinary crisis was reached in the year 1700; for some time prior to this, the collection of beavers had been so excessive as to partly glut the market, but in the year mentioned, the number of beaver skins collected at Montreal was so enormous, that three-fourths of the collection were burned, to make the other portion worth exporting.

The methods of handling, and the kinds and names of beaver skins in those days, were totally different to anything met with to-day. Happily these details were all preserved, and a description can be given, not only of each kind, but also of the prices current one hundred and fifty years ago.

"There are eight kinds of beavers received at the Farmer's Office.

"The first is the fat Winter Beaver, killed in Winter, which is worth 5*s.* 6*d.* per pound.

"The second is the fat Summer Beaver, killed in Summer, and is worth 2*s.* 9*d.*

"The third, the dry Winter Beaver, and fourth, the Bordeau, is much the same, and are worth 3*s.* 6*d.*

"The fifth, the dry Summer Beaver, is worth very little, about 1*s.* 9*d.* per pound.

"The sixth is the Coat Beaver, which is worn till it is half greased, and is worth 4*s.* 6*d.* per pound.

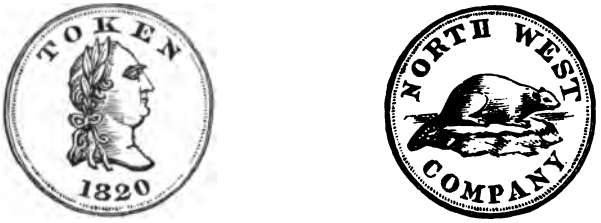
"The seventh, the Muscovite dry Beaver, of a fine skin, covered over with a silky hair; they wear it in Russia, and comb away all the short down, which they make into stuffs and other works, leaving nothing but the silky hair; this is worth 4*s.* 6*d.* per pound.

"The eighth is the Mittain Beaver, cut out for that purpose to make Mittains, to preserve them from the cold, and are greased by being used, and are worth 1*s.* 9*d.* per pound."

The sale of beaver skins by the pound was a very early custom which has survived until now, and arose thus. Beavers were formerly used exclusively for hatters' purposes, and in a "Report upon the Petition Relating to the Manufacture of Hats," presented to the British government in 1752, indirectly we gather some most valuable hints concerning the traffic in beaver skins. The hatter, of course, used only the beaver wool or fur which had been removed from the skin and separated from the long, coarse, outer hairs—the "King" hairs—and was worth in this state from twenty to forty, and sometimes, even fifty shillings per pound. But the steadily advancing price of beaver seems to have reduced the profits of the first dealers to such a degree that recourse was had to the fatal plan of adulterating the wool, with materials sufficiently like it to make a passable mixture, but not without its effects on the quality. To overcome the possibility of this fraud the raw skins were purchased directly by the hatters, who estimating the quantity of wool relatively by the weight of the entire pelt, naturally established this method of dealing. Further there was an evident difficulty in determing a basis of value for the "Coat Beaver" and "Mittain Beaver" on any other plan. The average weight of beaver skins is from a pound and a half to a pound and three quarters each.

A change suddenly took place in 1760, when Canada was handed over to British rule and the entire continent recognized the sovereignty of the British Throne. A greedy rush, to gather the crop

of peltries which the Indians had hitherto passed through the French hands immediately followed. Among the first to reach the west by the newly opened route was Alexander Henry, an account of whose adventures, which extended over sixteen years, forms a unique volume in our bibliography. His graphic description of the intertribal game of "Bagawatin"—le jeu de la crosse—followed by the massacre of the English inhabitants of Fort Michilimakinac, gives this book extreme value. During this time the great wars of the Revolution were taking place, whereby Britain lost, in 1776, more than she had added so short a time before. The whole of this conflict had its influence over the Indians, who became the allies



THE NORTH WEST COMPANY'S BEAVER TOKEN.

pro tem of the highest bidder, and the more domestic avocation of fur-hunting was neglected for many years. It was not till 1784 that any organized attempt was again made to control the fur trade of Canada, when the formation of "The North West Company of Montreal," marked an epoch in Canadian history, of which we may be justly proud. With regard to the importance of the Beaver in their estimation, it would almost appear that they cared for little else. The Governor lived in "Beaver Hall," a name still perpetuated in Montreal; the members, only sixteen originally, formed a social club as distinguished as it was exclusive and named the "Beaver Club;" and finally the Company issued a "Beaver Coinage," specimens of which realise fabulous prices to-day, as only about seven pieces are known to exist.

From small beginnings the organization developed rapidly till its army of employees rose to upwards of four thousand. The men conspicuously associated with this Company stand in our country's history as powerful, brave and energetic examples of Scotch Canadians, and we admire the names, Mackenzie, McGillivray, McTavish, the McGills, Frobishers, Simpsons, and others, though one important name has been curiously omitted from its share of glory, and that is the name of David Thompson, whose achievements have been of national importance, yet but little popular reputation has he gained.

Thus the declining years of the last century saw the North West Company enjoying an amount of prosperity which elevated the shareholders to the dignity of merchant princes, and the importance of the trade eclipsed all other projects for many years.

Early in the present century, a spirit of enterprise seemed to have awakened in the United States, and in 1804 Messrs. Lewis and Clarke, fitted out by the American Government, accomplished the task which Messrs. Carver and Whitworth had projected as early as 1774; this being no less than a march across the continent, by way of the Missouri, and the water courses of the eastern slope of the Rocky Mountains, thence over the mountain peaks, by the hazardous and treacherous passes, all unknown to the explorers, till the fertile Pacific slopes were reached.

John Jacob Astor was then a young man, full of pluck and enterprise, and his attention being attracted to the new fields, he organized in 1810, the famous "Pacific Fur Company." He outfitted one contingent for crossing the continent, and another by ship to round Cape Horn, to carry supplies for the proposed settlement of Astoria and for the further purpose of pursuing trade with the natives along the coast. The story of this enterprise as told by Washington Irving is among the classics of our literature, and a more enchanting historical romance America has never produced.

Now we have the three avenues more actively employed than

ever before, every corner of the continent being ransacked for beavers; the Hudson's Bay Company on the north, the Pacific Fur Company on the south, and the North West Company by way of the St. Lawrence, or the central route. Of course the boundaries of these corporations were quite undefined, and in fact there seems to have been most honor in the breach of mutual respect, for the accounts of the attempted subterfuges to gain advantage, reflect discredit on corporations of such wealth and magnitude. So fiercely did competition run, that bloodshed at last followed and left a ruined trade, as the natural consequence of successive efforts to outdo previous methods of sharp practice, wherefore, defeated by its own objects, and to save further difficulties which threatened, an amalgamation of the two northerly bodies was effected in 1821, from which date a new era in the fur trade began.

Just at this time, it will be remembered, the Nutria fur was introduced to relieve the excessive demand for beavers, and a few years later, when silk was adapted to hat making in imitation of the "old beaver," we may say the question of the beaver extermination was indefinitely postponed. Of course the hunt was not completely abandoned, only such quarters were neglected as required too great an outlay of energy for the few beaver skins obtainable, and in a few years in some of these districts the animals became very plentiful again.

The absorption of the North West Company also lengthened the history of the Hudson's Bay Company, as far as regards its fur industries, and the extraordinary magnitude of their operation has certainly been without parallel in our day. For nearly fifty years the gathering of the annual fur crop, and its subsequent disposal at auction, in London, has been a regular chapter in the growing history of the Empire. But in 1869, the Dominion of Canada was compelled to take over the reins of power from the Hudson's Bay Company, giving a monetary consideration and recognizing certain very considerable land possessions, which latterly have become of the first importance to the Company, and placed the beaver trade forever among the past glories of our history.

A TRAPPER AND TRADER OF THE OLD RÉGIME.

From an indispensable source of food and clothing, we have seen the beaver advance in importance till nations waged wars for the monopoly of its rich traffic, and now it has become so insignificant a factor in trade that there is scarcely a single field left, in which it does not find a successful competitor. Its value as food is never considered, now that the means of carriage have so annihilated distance, that the luxuries of the most favored nations are obtainable in cities which have sprung up in wilderness and prairie, while from these centres radiate every modern means of conveyance. Where a dozen years ago the rickety, creaking Saskatchewan cart followed wearily the slow footed ox, to-day the trains rush with mimic flashes of the lightning which urges their career. Beaver leather, like beaver wool, has lost its recognition among the requirements of progressive manufactures, and, as the beavers disappeared before approaching civilization, their places have been more than supplanted by the domestic cow and the sheep, which furnish so completely our wants of food and clothing.

One other aspect alone remains to consider, that of the uses of the beaver skin to the furrier. This field was opened about the beginning of the century, when nutria and silk filled the demand, which for generations had relied almost solely on the beaver, and had threatened the extermination of this valuable animal. In texture the fur of the beaver is very appropriate for all smaller articles of apparel such as caps, collars, victorines, cuffs, muffs and gauntlets, and fashion has even gone the length of making it into entire garments for both ladies' and gentlemen's wear, but for these latter the weight may be considered an objectionable feature. For all these purposes the leather is dressed or tanned—a simple process for reducing the weight of the skin and extracting the fat and grease—and then the long coarse hairs are usually plucked out by hand, or sweated and pulled by a heavy knife on a beam. When dressed only, the skin is said to be "natural," it is usually of a brownish color, and the appearance is rather rough and meets with limited favor; but when the coarse top hairs have been removed it is known as "plucked beaver," and in this state is very familiar in the trade. The appearance is generally a soft woolly fur

from half an inch to nearly an inch in depth, and bluish or silvery grey in color. There is no special utility in the fur, and it has many rivals which tend to make it less esteemed than it otherwise would be; and to the unpractised eye there is a general resemblance to it in the plucked otter, plucked nutria, and plucked raccoon.

In the report of the Hudson's Bay Company for this year, published in London, July 14th, announcement is made that "owing to the state of trade the Directors had closed a number of their posts." The beaver hunter finds his occupation usurped by every villager who can procure a trap or gun, and who sallies into the woods intent on the destruction of whatever comes in his way. The "voyageur" has long lost his usefulness now that steamboats throng our waters, and the old institutions of the once famous beaver trade are one by one passing into the mists of oblivion, so that to Mrs. Hopkin's beautiful portrayal of the "Brigade of voyageurs crossing Lake Superior" we may appropriately apply the alternative title, and fancy that we witness the actual passing of the old régime into "the Spiritland."

LAKE SUPERIOR, OR THE SPIRIT LAND.

USES OF THE BEAVER IN MANUFACTURES.

"Aristotle said in his chapter on hats, that the history of this indispensable finish to dress would never be complete. Undoubtedly, some serious writers, learned men of the first order, have not hesitated in our day, in instituting an inquiry into the principal historic periods of fashion, to spend some time over the Petasus, that head covering as indispensable to the health of man as to the dignity of his bearing. But these are far from summary indications of a work in accord with the importance of the subject. Let us hope that the prophecy of the ancient philosopher will not be verified, and that one day all the documents on this subject will be collected with care. That which in our eyes is only a fragment, drawn by chance from an interesting commercial case, will become a paragraph of an honorable quarto."

A Paragraph in the History of Beaver Hats—1634.

—Anonymous.

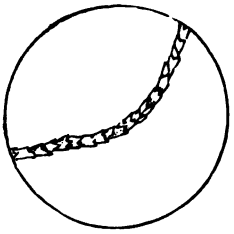
CHAPTER XI.

THE NATURE OF FELT—PROPERTIES WHICH MADE THE BEAVER VALUABLE —THE WONDERFUL ESTEEM OF OLD "BEAVERS"—LEGISLATION CONCERNING BEAVER HATS—PROCESSES OF MANUFACTURE—BEAVER WOOL ADULTERATED AND FINALLY SUPPLANTED.

The history of hats in different ages and different climes, would convey a great fund of information, and would doubtless mark the stages of civilization more clearly than the study of any other feature of our dress. At what time felted wool was first employed in making hats, it would be difficult to say, though it is known to have been used in Western Europe since the fourteenth century, when felted hats were articles of luxury, and worn only by the rich. How felting was discovered may ever remain a secret, as history affords us only the traditions concerning St. Clement, which, though of much simple beauty, would scarcely satisfy a scientific enquiry. The story tells how St. Clement, a devout and generous priest, becoming weary and footsore while intent on one of his charity missions, found his sandaled feet so galled, that to proceed on his journey seemed impossible. He sought rest by the roadside, but his attention was distracted by the bleating of lambs, while beyond the hedge he beheld a fox chasing a lamb. With characteristic pity, obeying the impulse of his good heart, he cleared the hedge, frightened away the fox and saved the lamb, wherefore the grateful little creature crouched lovingly at his feet, and expressed its gratitude in eloquent glances. While fondling the lamb, St. Clement observed some loose wool which he gathered and examined. The texture was so lovely, that an inspiration suggested applying it to his lacerated feet. He bound his wounds with the soft wool, and was able to resume his pilgrimage. Reaching his destination, he removed the sandals, and instead of the fine soft wool, he discovered a piece of felted cloth.

This interesting story accounts for the first principles of felting, and moreover, St. Clement has become the patron saint of the "Hatters' Guild." In Ireland and Roman Catholic countries the festival of St. Clement is celebrated each year on the twenty-third day of November.

No further knowledge of felting was obtained till the microscope was introduced into manufactures, and the structure of fibres and tissues, both animal and vegetable became clearly understood. Place a single particle of beaver fur under the microscope, and with a power giving magnification of about fifty diameters, the structure at once is discernible. Over the entire surface a series of scales appear to overlap each other, and the edges of these lying all one way, give the fibre the impulse to travel in the opposite direction, for the "staple"—as the edges are called—catches when pressed against, and forces the fibre onward, the disengaged edges lying flat the while; yet so firmly do they interlock, that the fibre will be invariably broken in the attempt to withdraw it. A quantity of fur or wool having this "staple" is pressed and worked together, especially with the assistance of steam or hot water, and the result is a piece of felted cloth, ready to be stretched into the shape of a hat or a boot, and dyed black, or colored to fancy. What is generally called fur is the woolly undercoat, the warm, soft covering supposed to be universally present on animals, and this wool is more or less stapled. The beautiful fur of the beaver is most perfectly constructed for felting purposes, and very early was this property discovered, in fact, so universally was beaver-wool esteemed, that two hundred and fifty years ago, when the introduction of rabbit's fur and other adulterations affected the beaver trade, Parliament stepped in to prevent the abuse, and tried to maintain the purity of the beaver felt.



BEAVER FUR
MAGNIFIED 50 DIAMETERS.

The interesting document, from which the introductory sentence is selected, gives some idea of the former importance of the beaver

to the hatting trade. It is a decree of the Court of France for the reduction in price of beaver hats, in which prayer is made "that the applicant (Liberti) may be permitted to give information of the treaties and conventions secretly acquired by monopoly between the master hatters who work in beaver, and Mathier d'Ustrelo, a foreigner; the said d'Ustrelo not to sell beaver skins, except to them, and in reciprocation they have promised the said d'Ustrelo, not to buy beaver skins except from him. And to give information likewise of frauds

ST. CLEMENT,
PATRON SAINT OF THE HATTERS.

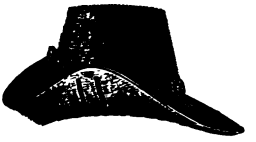
perpetrated in the manufacture of the said hats, putting first a layer of beaver, which makes the inside of the hat, then a second, which is only English rabbit's hair, and above that a third, which is beaver. And again, in order that all may conform to a general rule, that the master hatters will be forced to make a declaration if they wish to work in beaver, or in wool and rabbit's hair, and forbidden to work against the terms of their agreement, and that it will be enjoined on the master hatters who have made the choice of working in beaver, to put on each hat their particular mark before they are put in the dye, according to the statutes and decrees under penalty of confiscation and fine. And further, that it may be permitted to the said Liberti to continue in the Hôpital de la Trinité, or such other place as it may please the Court to designate, the manufacture of beaver hats by all the masters and journeymen, who choose to work there, and will be qualified for the offers which the said Liberti makes to furnish them with prepared beaver, and to pay them for the workmanship of each hat well and duly made (which is the work of half a day) the sum of forty cents (quarante sols), and to supply for the present, fine and well made hats, to the public for the sum of quarante-quatre livres (about $8.80), and in the month of January next, to give them for quarante livres (about $8.00), and according to the quantity which will be forthcoming in the following years, to moderate the price in proportion; that the said Liberti may be permitted to seize and hold in the hatter's shops, as well as in other places, beaver hats which they may find mixed, defective, falsified, and not marked with the customary marks of the masters who may have made them, and that the penalties and fines will be awarded, half as the profit of the plaintiff, and the other half as the profit of the poor children of the Trinité, the costs deducted, and in addition, to ordain such rule for the public as it may please the Court of the one part, and the sworn master hatters of the town of Paris, appellees and defendants, of the other.' "

Four years later than this—in 1638—the British Parliament issued a proclamation, strictly forbidding the use of any material for the making of hats, excepting "Beaver stuff" or "Beaver wool," and we learn that in 1663, a good beaver hat was worth £4 5*s*., which very

"CONTINENTAL"
COCKED HAT.
(1776)

"NAVY"
COCKED HAT.
(1800)

ARMY. (1837)



CLERICAL.
(Eighteenth Century)

(THE WELLINGTON.)
(1812)

CIVIL.

(THE PARIS BEAU.)
(1815)

(THE D'ORSAY.)
(1820)

(THE REGENT.)
(1825)

MODIFICATIONS OF THE BEAVER HAT.

positively indicates the high esteem in which they were then held. Beaver hats had been introduced into general wear in the reign of Queen Elizabeth, but in that period they assumed all manner of shapes and variety of color. Shortly afterwards brims were much broadened, and hung down when in wear. These broad brims continued to be worn, but the inconvenience of the wide flapping edge, led to the turning up of first one and then two flaps, until in the reign of Queen Anne, a third flap was turned up, and the regular "cocked hat" or "continental hat" was formed. In various styles the "cocked hat" remained fashionable during the whole of last century, and with the present century, came in the conventional "stove pipe" shape, which with infinite variety, has lasted to our own day. The shape of the hat was the fancy of a season, and even the most fractional variation in width of brim or height of crown, was sufficient to satisfy the demand for novelty. The general conception of a beaver hat is the well known model adopted for civil use, but the pliable beaver felt has been subject to almost every modification a head covering could possibly assume. In the accompanying plate we illustrate several well known shapes, all typical examples of the use of the pure felted beaver, yet exhibiting a wide field of consumption and perfect adaptability in each case.

Though apparently different, these several types all conform to one general system of manipulation, and as the introduction of machinery has brought about so many changes, as to place the manufacture of the old felted beaver among the lost arts, it will be interesting to follow briefly, the processes through which each of them has passed, and perhaps learn more to admire the dignity once attached to a "Beaver." The nature of the pelt, as it came from the trader, in the raw state, has been already implied; it was a rough, greasy skin, covered with coarse brownish hair, under which was the fine rich fur or wool. The skin was first shaved clean of both hair and fur, and consigned at once to distinct industries, so that for the moment we leave it, and consider the several stages through which the other parts were passed. To separate the coarse hair from the wool, was managed in a very simple and effectual manner; this was done by means of the "blowing machine," into which the mixed

material was placed, and treated as follows:—A revolving fan, working at great speed, drove a current of air through the receiving box and thence along an enclosed casing about a hundred feet in length. The force of the air carried the mixed material from the receiving box along the casing, but as the force of the draft diminished, the power of gravitation took the work upon itself of separating every fibre according to its weight, thus the heavy coarse hair and any foreign substance mixed with it, fell soonest, and was gathered into

THE HOOD,
OR BEAVER HAT IN ITS FIRST FORM.

bins, while each succeeding grade of finer material was sorted and deposited each with its kind, and practically divided, so as to show every variety of quality contained in the original fleece. The finest and most valuable fur was, owing to its lightness, blown to the extreme edge of the casing, and freed from every impurity.

This simple contrivance achieved what apparently is beyond the appreciation of our most delicate mechanism, and this process practically determined the consequent quality of the finished article, as the next stages will show. Taking the grade of wool required for the inside layer of the hat, to the "hat forming" machine, and

laying on the feeding apron, the necessary quantity, this was gradually supplied to rollers, revolving at, say four thousand per minute, and the fibres were thus separated and thrown towards the outlet of this machine, opposite to which was a slowly revolving copper-cone. This cone was about three feet high, and was finely perforated, while within it an exhaust fan caused a current of air to pass from the outside through the perforations. By this means the fibres were drawn on to the cone and held in place till a delicate covering of fur overlapped the whole form, when a fine spray of boiling water turned on to this fur and cone caused the fur to "set" or commence felting, holding together sufficiently to allow the delicate form to be handled and removed from the cone, furnishing the hood, or beaver hat, in its first form, and the remaining stages were merely to shape and to dress the surface. By repeated applications of warmth, moisture and pressure, the felting was continued till the texture became firm and tough, and was ready to draw over a block or mould, on which the material was worked until it had taken the desired shape. This process required considerable skill as the hat should be completely shaped before the hood lost the warmth and moisture necessary to keep it pliable; it stiffened when cold as a nature of the felt, but to produce a harder body, shellac was forced into the hood from the inner side. Then taking some of the finest fur and spreading it over the surface of the "body," by the application of warm water and careful manipulation, the staple was worked in so as to give the effect of fur growing all over the roughly-formed hat, and in this shape it passed into the dye-room.

It need scarcely be stated that the machinery introduced in this description was comparatively of recent date, and that every advance in mechanical appliance thrust into disuse the earlier manual tools. Thus the blowing machine supplanted the old "bow"; and prior to the introduction of the hat-forming machine, the hatters' leather and the palm of the hands accomplished in a tedious way similar results. The process of felting by hand had the result of hardening the cuticle till the hatter's hand was quite corneous.

The dyeing is not peculiar to the texture, but is the same as ap-

plied to any woollen fabric, and though we are familiar to-day with only the sombre black and an occasional variety of shade in the case of natural wool, in olden times a great deal of taste was displayed in the matter of color.

To "dress" the hat it was placed on a revolving block, while the finisher applied brushes, irons, sandpaper and velvet polishers, till the surface was so smooth, that an old fashioned "beaver" would shine as brightly as a modern silk hat, while it had the exquisite beauty of the long velvety pile or fur. The trimming and binding were minor operations, though they helped to give the hat much of its style, and when the trimmer had done his work, the hat had received the finishing touch.

Simple as these various processes may seem, the making of a beaver hat was almost a lost art in the trade, when the fashion for beaver hats for ladies revived a score of years ago, and in consequence the manufacturers had to search the workhouses and almshouses for old hatters, and called once again to the bench the feeble hands which so long had been unemployed, yet whose training in the severe apprenticeship of olden days, had made the special work of each a matter of second nature, so that genuine "old beavers" could again be produced; but when the demand ceased, the trade again fell into decay, and if the call for old hatters should ever again arise where shall they be found?

The old *habitant* in our back country cherishes his "chapeau de castor," which, carefully wrapped up the six Godless days, he unfolds on the seventh, and covering his grey hairs he totters to the village shrine, there to commune for a short hour with the old companions of his youth. One by one they drop out of the ranks and claim their small portion of the village churchyard. Their few worldly possessions are soon divided among a numerous progeny, but none care for the legacy of the once treasured *chapeau*, and moths and vermin soon reduce it to dust.

Though not strictly within the scope of this volume, it certainly

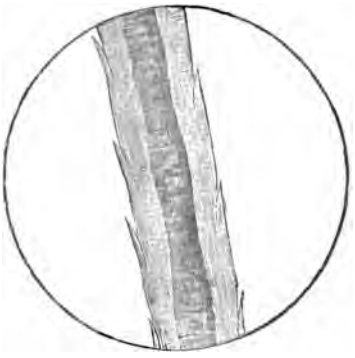
will help the appreciation of both articles if the difference between the old "beaver" and the present silk hat be explained. The latter depends on a woven silk plush for its outside cover, and this fabric is weaved in lengths, having both the appearance and much of the character of a loose velvet. The "body" or form of the hat is made of layers of hatter's cotton, a soft open texture, which coated with shellac, is bound on the block or form, and being thoroughly pliable while warm, is nicely adjusted to the desired shape, and then allowed to cool and harden. The silk plush is then cut; a circular piece for the crown, a broad band for the sides, and an open circle for the brim; these are carefully sewn together, drawn over the "body" and finished after the fashion of a "beaver."

About the middle of last century the hatting industry seems to have been in a very unsatisfactory state. In France, a law forbidding the export of beaver skins, had the effect of establishing an artificial advantage in favor of the French manufacturers. England then allowed a drawback of duty on all exported beavers, which stimulated an export trade, while a gradual decrease in importation made prices too dear for the manufacture of pure beaver felts, and we read of mixtures of "*coney wool, goat's wool and other materials*" in the efforts to produce a hat at a fixed price.

It should be observed here, that there existed a demand for beaver wool for felting purposes other than the uses in the hatter's trade, and there seems to have been a limited quantity employed in Russia, in making cloth and other fabrics.

To return to the skins from which the fleece had been taken:— the quantity of these must have been very considerable for many years, consequently, it is not surprising that a profitable commercial outlet was discovered. The trappers knew that from the cleanings and scrapings of beaver skin, a glue was obtainable, and they saved the scrapings of the skins to boil down for this purpose, applying it to their canoes or wherever a reliable glue was necessary. In Europe, the skins were turned over to the glue-makers, and though the article may have answered the purpose well, and may have been

sufficiently cheap and otherwise desirable, it is not a matter of loss to this industry that so few skins are now offered, as the enormous supplies of horns and hoofs must easily compensate for any shortage consequent on the altered uses of the beaver skins which to-day, the furrier claims as well as the fur. It is hard to admit that the usefulness of the beaver has passed, and the world unsympathetically banishes it without a thought of the wonderous value in has been. But this is an unsentimental age, and progress is no respecter of persons or animals, so we must face the matter squarely and prepare to pay our tribute to the last of the great beaver host which will soon leave us forever.



BEAVER FUR,
MAGNIFIED 250 DIAMETERS.

From Photo-micrograph by Mr. Albert Holden, Vice-President Montreal Camera Club.

HUNTING THE BEAVER.

LABRADOR.

A POETICAL EPISTLE.

" Fond, in the Summer, on young twigs to browse,
The social Beavers quit their Winter's house.
Around the Lake they cruise, nor fear mishap,
And sport unheedful of the Furrier's trap.

. . . . . .

September comes, the Stag's in season now;
Of Ven'son, far the Richest you'll allow.
No Long-legg'd, Ewe-neck'd, Cat-hamm'd, Shambling Brute;
In him strength, beauty, size, each other suit.

. . . . . .

All this is pleasure; but a Man of sense,
Looks to his Traps; 'tis they bring in the Pence.
The Otter-season's short; and soon the frost
Will freeze your Traps, then all your Labour's lost.
Of Beaver too, one Week will yield you more,
Than later, you can hope for, in a Score.

. . . . . .

The Furrier now, with care his Traps looks o'er
These he puts out in paths, along the Shore,
For the rich Fox; although not yet in kind,
His half-price Skin, our Labour's worth we find.
And when the Beaver lands, young Trees to cut,
Others he sets for his incautious foot.
On Rubbing-places, too, with nicest care,
Traps for the Otter, he must next prepare.
Then Deathfalls, in the old tall Woods he makes,
With Traps between, and the rich Sable takes.

Now cast your Eyes around, stern Winter see,
His progress making, on each fading Tree.
The yellow leaf, th' effect of nightly frost,
Proclaims his Visit, to our dreary Coast.
Fish, Fowl, and Ven'son, now our Tables grace;
Roast Beaver too, and e'ery Beast of chase.
Luxurious living this! who'd wish for more?
Were QUIN alive, he'd haste to LABRADOR!"

—George Cartwright—1792.

CHAPTER XII.

METHODS EMPLOYED BY THE INDIAN—INTRODUCTION OF THE STEEL-TRAP —DISCOVERY OF THE CASTOREUM BAIT—SYSTEMATICALLY EXTERMINATING THE BEAVER—THE "BEAVER EATER" AND OTHER ENEMIES —HUNTERS' STORIES.

The Indian in his primitive state could scarcely with justice be called a "beaver hunter," though in the effort to procure food and clothing, he doubtlessly destroyed many of these animals. The accounts of the life and habits of the North American Indian vary so much, that many facts have to be considered which reflect only sidelights on the stories, and as testimony, add no more than circumstantial evidence. Think for a moment of the means the Indian employed to kill or capture his quarry, and then compare the crudeness of these, with the cunning awakened in the beaver when the most ingenious snares of the white man were used. Aboriginal tribes the world over have left as types of their native ingenuity, the arms they invented for use in warfare or the chase. The "Boomerang" suggests to the mind the distinct type of the Austral negro, and the Patagonian with his "Bulla" is widely separated from the Polynesian with his war clubs and war paddles. The native weapons of the North American Indian were undoubtedly his arrow, spear, and tomahawk, the first two were used mostly in hunting, while the last was the indispensable weapon in war, and the most typical of the race if taken together with the scalping knife. The arrow and spear, when in the most perfect state for use, were tipped with horn, which lent itself to nice manipulation even if it could only be fashioned by the beaver-tooth chisel, and flint tips also were very extensively used. Armed with these, the Indian was prepared to meet the demands of his household, but would never

have made much headway against animals by virtue of his weapons alone, and all writers agree that it was by stealth that he accomplished his purpose, whether in war or in peaceful adventures. We are told that the Indian used to lie in wait for the beavers, as they came from the water to their work in the woods, and by thus getting within very close range, he was enabled to plunge his arrow into the soft flank of the animal, and we can easily imagine that this method of destruction was very slow. It is now difficult to believe that the "deadfall" was also used, but no doubt the Indian contrived to make this trap a very perfect imitation of nature, or the beaver could never have been attracted by it. The nature of the beaver's food makes it difficult to select a bait, and as castoreum and its attractive powers were not known to the Indians until long after the arrival of the white man, we cannot suppose that this plan was much more reliable than the arrow. These considerations, of course, have reference to the seasons of the year when the waters were open and vegetation more or less abundant, while an extensive variety of fish and the flesh of game birds and animals made the tribes less dependent on the beaver. When, however, the autumn came, and passed rapidly into the severe winter experienced in nearly the whole of the "Indian-Beaver" territory, when the little vegetation that remained was shrouded under a deep covering of snow, when migratory birds, beasts and fishes had abandoned their former haunts, then the Indian looked on the beaver colony as a providential arrangement to supply his wants. A few tribes such as the Hochelagans, would gather their crop of Indian corn and then face the winter with a feeling of confidence that must surely have aroused the spirit of husbandry among their neighbors. Unfortunately, however, there were always predatory tribes, who on the swift snowshoe, thought it better to steal supplies than to cultivate them, and consequently, existence was never a matter removed from care in those early days. The winter might be more severe than usual and prevent foraging excursions, or it might start earlier and last longer than usual, so that the proximity of the well stocked beaver colony was a most important consideration. No wandering band of robbers would care to plunder this, as the equipments they carried would not have made it profitable to risk so much time in the woods, be-

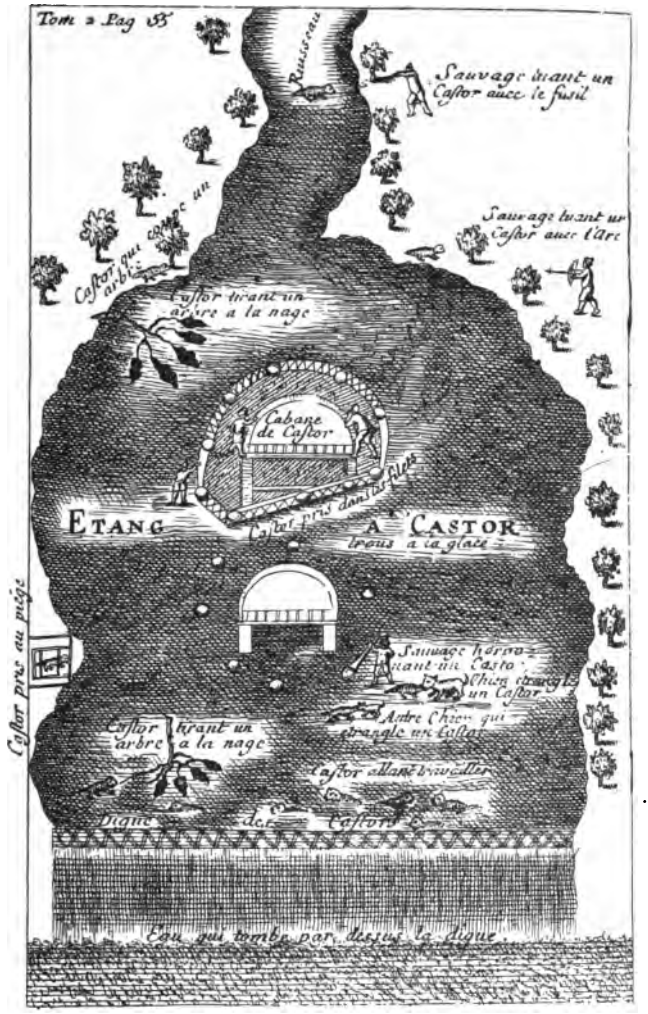


DIAGRAM OF A BEAVER HUNT—1704.

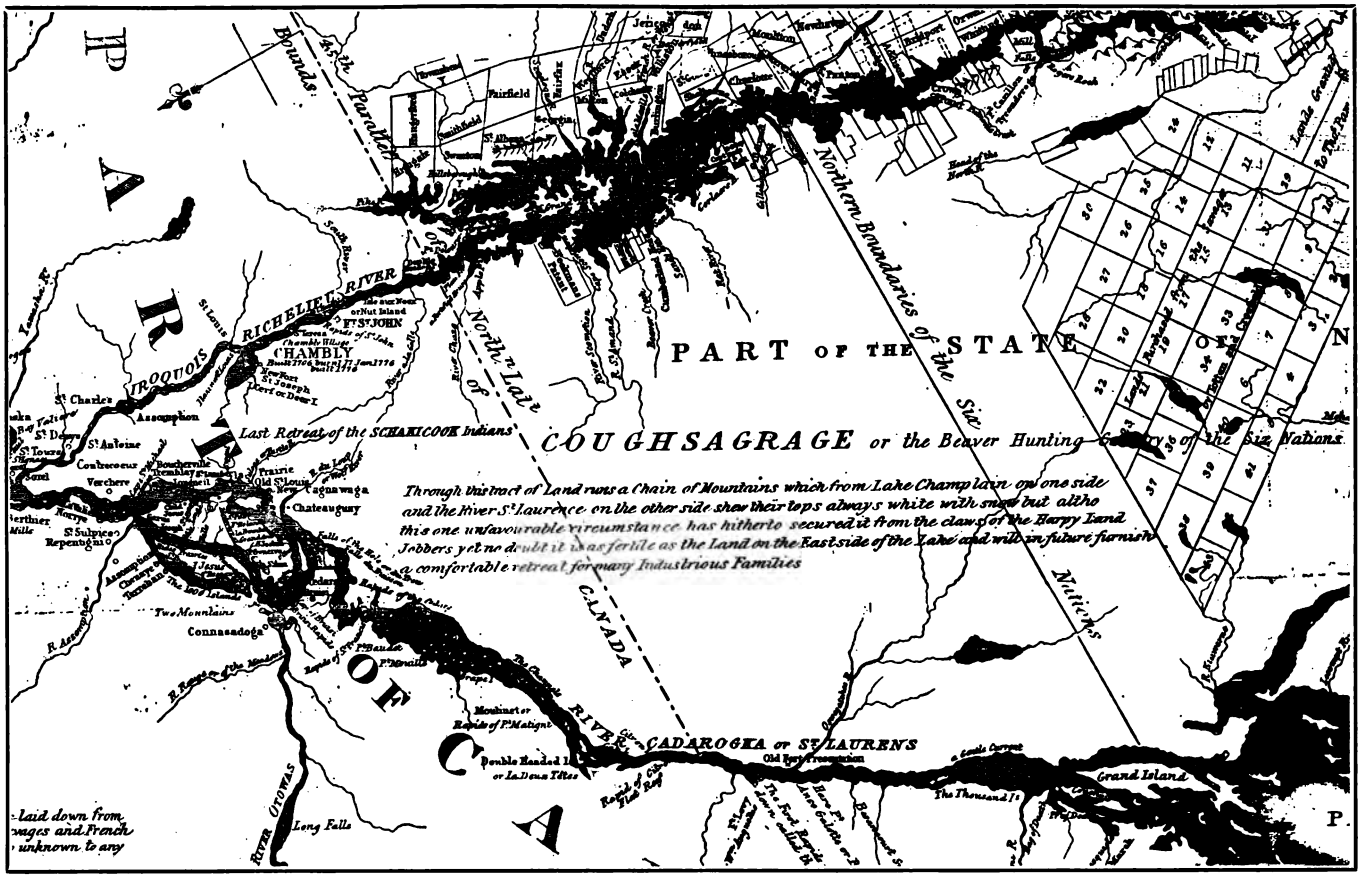
sides, if they wanted to collect supplies by their own labors, there were plenty of beaver reserves nearer their own homes.

Let us suppose that the winter has advanced to its height, that the heavy frosts and storms have come and bound all nature in an icy covering, deep under which the beaver hibernates in its warm nest. In the months of January or February, a change sets in and the weather moderates; this is the opportunity to replenish the larder, and after many weeks of quiet and laziness, the village is all alive and excitement runs high, for a hunting party is being formed to visit the beaver colony. Men, women, children and dogs are all prepared for the start. Axes, spears, nets and clubs form the equipment, and the moccasined feet soon tread a pathway through the woods, as the party in "Indian file" follow the chief guide to the scene of the coming slaughter. The first step is to quietly cut a series of holes around each beaver house or lodge, and through these holes place a netting in which the creatures will become entangled when they rush from their nest. This preparation being completed, a sudden onslaught is made on the lodge; this is the work of the squaws, who quickly demolish the structure, driving the occupants hurriedly off to their washes or burrows in the bank where they seek refuge. A few are killed in the house, others get caught in the netting and soon drown, still others escape both of these fates and swim off for the bank, but they are none the less doomed, for the well trained "beaver dog," wild with the excitement of the moment follows over the ice, the course the poor hunted creature takes in the water, and when the beaver enters his burrow, the dog remains barking and scratching at the place. How completely the colony was at the mercy of the Indian, notwithstanding his crude weapons, must clearly be seen, and it was quite in the hunter's power to annihilate the whole colony if he pleased, but in this respect the Indian was very provident, and in recognition of the immense value the creature represented, he never allowed his beaver reserve to be too closely hunted.

The Baron La Hontan in his valuable "Memoires de l'Amerique Septentrionale" says of the division of the spoils consequent on such

an excursion as we have already pictured, that each individual was allowed to keep to himself all the beavers he dug out of the burrows; all that were taken in the nets were divided among the whole company of men, the squaws kept any they killed in the lodges.

The whole Iroquois family, whose various tribes occupied the richest quarter of the continent, was as dependent on the beaver as the prairie tribes were on the buffalo, and through all the early records they are represented pre-eminently as the "Beaver Indians." It will be remembered that the Hurons, a branch of the Iroquois tribe, who occupied the shores of Lake Huron, were among those who claimed descent from the great cosmic Beaver and used its effigy as their *totem*. By referring to the map used in Chapter VI., to show the former distribution of the beaver, it will be seen how extensive were the "Beaver reserves of the Iroquois" and of "The allies of the French"—"Chasse de Castor des Iroquois;" "Chasse de Castor des amis des François." The accompanying map from the "Documentary History of New York" is of special local interest, as it recalls the fact that where now populous settlements live in peaceful husbandry, and where many a busy manufacturing town now stands, not long since was the home of the beaver; and that though not a representative remains now in all the neighbourhood, the site was once so thronged that the wisdom of the Indians selected it as a "Beaver Hunting Country"—"*Pais de Chasse de Castor.*" No more interesting feature can be found in the whole study of the beaver economy, than that afforded by the beaver hunting reserves. In some cases in the interior of our country, near the height of land, these hunting grounds are still recognized as the rightful property of certain Indian families, and curiously, the line of descent is on the mother's side, so that travellers relate how many an old decrepit squaw is honored and propitiated for favors from her beaver reserve. These reserves were held with as much exclusiveness as a freehold estate in England, and to trespass or to poach on them meant to jeopardise one's life. The question of ownership involved all the mystic relations of the social career of the Indian—genealogies, tribal affinities, questions of caste and preference; but also rested greatly in the first instance on the right of might; as their


PART OF THE STATE OF N
COUGHSAGRAGE or the Beaver Hunting Country of the Six Nations
Last Retreat of the SCHAHCOOK Indians
Through this tract of Land runs a Chain of Mountains which from Lake Champlain on one side and the River St. Laurence on the other side shew their tops always white with snow but altho this one unfavourable circumstance has hitherto secured it from the claws of the Harpy Land Jobbers yet no doubt it is as fertile as the Land on the East side of the Lake and will in future furnish a comfortable retreat for many Industrious Families
Northern Boundaries of the Six Nations
North Lat. of
CANADA
RIVER CADAROQUA or St. LAURENS
RICHELIEU RIVER
IROQUOIS
CHAMBLY
Fort St. John
Connasadoga
Two Mountains
Chateauguay
Grand Island
Long Falls
RIVER OSWEGATCHIE
Bounds of Massachusetts
Laid down from ... unknown to any

THE BEAVER HUNTING COUNTRY OF THE SIX NATION INDIANS—1749.

war-path was invariably the court of appeal among the Indians. Let us consider briefly the "*Coughsagrage*," or the Beaver Hunting Country, on the accompanying map, and trace its history. We have already seen how the early settlements of Europeans kept, of necessity, close to the great waterways, and from many accounts of the early writers it can be fully ascertained how powerful, and sometimes how cruel the Indians were; how, at times, their malice led them not only to individual assaults, but even prompted them to butcher whole communities, as in the case of the Lachine Massacre, in 1689. It will thus be seen that certain deference towards the laws of the Indian was exacted from these early settlers, and among these laws, that relating to the rights of beaver hunting would be carefully regarded; so that, while the white man held his tempting stock of merchandise the Indian controlled the hunting of the beaver. The district now under consideration was a very rugged, wild and mountainous territory (a portion of the Adirondacks), well watered and well wooded; and at that period (1749) in a primeval state, offering a paradise for beavers; a small territory, yet one in which almost any stream or lake could support a colony. Into this district the Indians made their excursions, and great festivals must have followed their occasional hunts, for there was the trader, waiting with his varied store to make exchange for every pelt, and by some small gift, trying to urge another visit to the reserve.

When the fur trader went first among the Indians, the beavers were very plentiful and the wants of the Indians comparatively few; but gradually the trader overcame the provident nature of the Indian, till when "fire-water" had become a regular article of barter, he was so changed that no thought seemed to possess his mind but the desire for more liquor, and he became debauched and debased, and completely under the power of the white man, for losing his self-control, he hunted expressly to try and satisfy a ceaseless thirst, and drew from a limited fund to meet an insatiable want.

It has been shown that in winter the methods employed in hunting, placed the beaver entirely at the mercy of the Indian, but when extreme measures were instituted, the creeks and streams were

closely staked across, a method called "trenching," whereby every inhabitant of the colony was imprisoned from the first move, and actual extermination alone satisfied the greed of the hunters. Soon the vast country of the Iroquois was ruined, and then the march northward and westward was pressed till the shores of the Arctic and the Pacific stopped the hasty rush; "the Iroquois, once the careful husbander of the beaver, now became the most inveterate hunter."

In the manuscript of Mr. David Thompson, to which reference has already been made, a very thoughtful survey of the position of affairs shows that too much color cannot be given to the period of 1784–1821, designated the period of Anglo-Canadian rivalries. About the year 1794, the Indians of Canada and New Brunswick, not satisfied with their achievements in beaver hunting, and observing the success of the white man in catching foxes, lynx, sables and other animals with the steel trap, turned their attention to the possibility of employing this means to augment their store of beaver skins. The one obstruction in the way was that no bait with sufficiently attractive powers had yet been discovered, the vegetable diet of the beaver and its constant and varied supply from the woods about it, made the case difficult to meet. At first the traps were placed under water in the run-ways of the beaver, the incipient canal, but without luring the beavers to the spot. No very decided advantage was thus gained, while the outlay for the steel traps and the inconvenience of carrying the heavy outfit for miles through the the woods, had certain disadvantages compared with the awkward wooden trap, which cost nothing but a few moment's work on material which everywhere was close at hand.

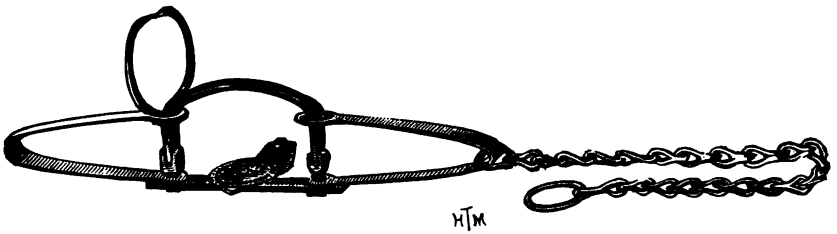
Experiments were made, mixtures of various kinds were tried, till at length it was found that those compounds into which "castoreum" had been introduced, filled more than the most ardent expectations, and what "fire-water" was to the Indian, so these castoreum mixtures were to the beavers. Their infatuation was without bounds, and the results which followed cannot be more graphically told than in Mr. Thompson's own words:—

"The secret of this bait was soon spread; every Indian procured from the trader four to six steel traps, the weight of one was about six to eight pounds; all labour was now at an end, the hunter moved about at pleasure, with his traps and infallible bait of castoreum. Of the infatuation of this animal for castoreum, I saw several instances. A trap was negligently fastened by its small chain to the stake, to prevent the beaver taking away the trap when caught; it slipped and the beaver swam away with the trap, and it was looked upon as lost. Two nights after he was taken in a trap, with the other trap fast to his thigh. Another time, a beaver passing over a trap to get the castoreum, had his hind leg broken, with his teeth he cut the broken leg off, and went away. We concluded he would not come again, but two nights afterwards, he was found fast in a trap; in every case tempted by the castoreum. The stick was always licked or sucked clean, and it seemed to act as a soporific, as they remained more than a day without coming out of their houses. The Nepissings, the Algonquins and Iroquois Indians, having exhausted their own districts, now spread themselves over these countries and as they destroyed, the beaver moved forward to the northward and westward. The natives, the Napataways did not in the least molest them; the Chippeways and other tribes made use of traps of steel, and of the castoreum. For several years all those Indians were rich, the women and children, as well as the men were covered with silver brooches, ear-rings, wampum, beads and other trinkets. Their mantles were of fine scarlet cloth, and all was finery and dress. The canoes of the fur trader were loaded with packs of beaver, till the abundance of the article lowered the London prices. Every intelligent man saw the poverty that would follow the destruction of the beaver, but there were no chiefs to control it; always perfect liberty and equality. Four years after almost the whole of these extensive countries became poor, and with difficulty procured the first necessaries of life, and in this state they remain, and probably for ever. A worn out field may be manured and again made fertile; but the beaver once destroyed cannot be replaced. They were the gold coin of the country, with which the necessaries of life were purchased."

While the country was being impoverished in this way, the pro-

fits made by the traders were so great that it was reasonably declared that some of the most colossal fortunes of England, France and America, were founded on the beaver traffic. Mr. Fred. W. Lucas in his "Shreds of History," which gives minute details of this period, after quoting the schedule of barter in beaver skins, says, "these prices are reckoned to have yielded a profit of 2,000 per cent."

The castoreum bait has never been superseded by any other, and every trapper who now attempts to capture the beaver is provided with his bottle of "medicine," as it is called, which consists of a vegetable mixture varying with the fancy of the individual, but invariably depending for its merit on the magic power of castoreum.



BEAVER TRAP, WITH CLUTCH.

At great variance with the former wise method of allowing sufficient beavers to remain in a neighborhood to perpetuate the race, is the advice given in a "Trapper's Guide," published recently in New York, in which the author says:—"A full grown family of beavers, as I have said before, consists of the parents (male and female), their three year old offspring, the two year olds, and the yearlings—four generations of four different sizes—occupying one hut, and doing business in one pond. When a trapper comes on such a pond, or one that he has reason to believe is inhabited by a large number of beavers, his object should be to take them all." This same writer offers a steel trap armed with a powerful "clutch," designed specially to hold the beaver's body, and prevent it tearing the feet from the trap; for the legs are so short that the beaver frequently manages to escape. The ordinary style of the beaver trap

is illustrated in Chapter X., being that carried by the old "Trapper and Trader."

In 1814, a letter from a North-Wester at the Mackenzie River Department, Great Slave Lake, which appears in L. R. Masson's "Les Bourgeois de la Compagnie du Nord-Ouest," contains the information that "the Indians complain at the want of beaver, (the Iroquois having ruined the country,)" and in a note the author explains that the North-Westers often took up the Iroquois as hunters, and "these Indians having no interest in the country, hunted recklessly and at all seasons. The cry of 'no beaver' is the only ground for reducing the number of posts on Peace River, and relinquishing the whole department of McKenzie's River."

Having thus shown the artificial destruction of the beaver, it might be well, at this, point, to refer to some of the natural enemies which helped to thin their colonies; and among these none have attained such notoriety as the wolverine (*gulo luscus*). From the days of Olaus Magnus, the "gulus"—or glutton—as it was then named, has been the object of most damning superstitions, and even to-day the animal is most popularly known as the "glutton." The Hudson's Bay traders called it the "quick hatch," and the French traders used the corruption "carcajou," both titles having a long list of variations and both supposed to have arisen from the same source, the Indian name "quickwahay," which, in J. Long's valuable Indian vocabulary, published in 1791, is translated as the "beaver eater." The animal furnishes many interesting features for study, and, on better acquaintance, proves itself by no means deserving of the unenviable notoriety it has achieved, though all the French traders held it so much in disrepute as to call it "enfant du diable"—"child of the devil." It was only the size of the adult beaver but proportionately very powerful, and possessed of that bloodthirsty appetite which distinguishes the weasels, ferrets, and all the representatives of this family. Consequently the defenceless beaver was a rich source of supply, and by lying in wait in the woods, or assaulting the lodges, doubtless many a victim was secured, and though the stories concerning the ravages are usually supposed to be

much exaggerated, there are grounds for believing that the "beaver eater" was a very successful competitor with the beaver hunter, and its distribution and disappearance have been strangely coincident with that of the beaver.

Besides the wolverine, both the bear and the otter are said to be enemies of the beaver, and testimony points pretty clearly to the latter devouring the young beavers. As to the bears, their depredations are most likely to occur in the Spring, when awakening from their long night's sleep, their appetites are most voracious, and beaver meat would, probably, be sought for as a necessity as well as a delicacy; through the Summer the bear would prefer the rich variety of vegetable food and the occasional meal of wild honey, while in the late Fall he fattens on fruits, berries and nuts; and then selects his quarters for his hibernation.

It is an unfortunate thing that the greater part of the knowledge we possess of the habits and manners of animals is based on information furnished by trappers and fur traders, for as Dr. John D. Godman says, a "hunter's story" is too often synonymous with an English word of three letters. In Godman's "American Natural History" the author devotes seventeen pages to what he calls the "Fabulous History of the Beaver," which he introduces by admitting that this part of the subject is richer in materials than any other; and that there is "one circumstance peculiar to the history of the beaver which has thrown over it more delusion than in the case of almost any other animal. To these persons (the fur trader and trapper) the beaver is a most important object, and regarded with a degree of admiration and superstition exactly proportioned to their ignorance. To become acquainted with the peculiarities of a species both nocturnal and exceedingly timid and vigilant, requires years of patient and assiduous attention." Further on, the author accuses those who from their circumstances should have acquired a knowledge of these matters, of taking a malicious pleasure in communicating "the most false and marvellous relations" and the following note, wonderfully suggestive of the application of salt to a bird's tail, may be taken as an example:—"Their tail is covered

QUICKWAHAY—THE "BEAVER EATER."

(GULO LUSCUS—THE WOLVERINE OR GLUTTON.)

over with scales, being, like a soal, about six inches broad and ten inches long, which he uses as a rudder to steer with when he swims to catch fish; and though his teeth are so terrible, yet when men have seized his tail, they can govern the animal as they please."

Beltrami, who wrote "La Découverte des Sources du Mississippi," must have provoked his guides sadly before the following admissions were made. "The beavers are divided into tribes, and sometimes into small bands only, of which each has its chief, and order and discipline reign there, much more, perhaps, than among the Indians, or even among civilized nations. Each tribe has its territory. If any stranger is caught trespassing, he is brought before the chief, who, for the first offence, punishes him *ad correctionem*, and for the second, deprives him of his tail, which is the greatest misfortune which can happen to a beaver, for this tail is their cart, upon which they transport, wherever it is desired, mortar, stones, provisions, etc.; and it is also the trowel, which it resembles in shape, used by them in building. This infraction of the laws of nations is considered among them so great an outrage, that the whole tribe of the mutilated beaver side with him, and set off immediately to take vengence for it. In this contest the victorious party, using the rights of war, drives the vanquished from their quarters, takes possession of them, and places a provisional garrison, and finally establishes there a colony of young beaver. The 'Great Hare,' at Red Lake, wished to make me believe that, having come to the spot where two tribes of beaver had just been engaged in battle, he found about fifteen dead, or dying on the field; and other Indians, Sioux and Chippeways, have also assured me that they have obtained valuable booty in similar circumstances."

When such accounts were current and accepted, nay, even expected among the marvellous experiences of those who recorded their adventures, we can understand that it was "difficult for a traveller to publish his travels without speaking of the beaver, although he should have travelled only in Africa, where there are none."

The number of writers on the beaver is legion, while accounts of

actual observers are so very limited that each record is of great value, especially now that the opportunities for study are so quickly passing; and it is a pleasure to refer to the article by H. P. Wells, in *Harper's Magazine* for January, 1889, which furnishes a chapter on beaver hunting, as carefully written as it is beautifully illustrated.

The next generation must accept our statements as we accept the accounts of the European beaver, and must regard our descriptions with the same credulity as we do the statement that "beaver hunting, anciently, was a favorite sport on the continent, if not in England."

THE DEADFALL
(AS NOW USED FOR MINK OR SABLE.)

EXPERIMENTS IN DOMESTICATION.

"We thus recognize in the beaver, which has disappeared within recent generations from so many of its Canadian haunts, and now lingers in greatly diminished numbers only in the least accessible waters, the survivor of a species familiar to man in remote centuries, rendered popular in the fables of Æsop, and noted by Herodotus, Hippocrates, Pliny and Strabo. The last relics of the extinct Dodo have acquired a value the living animal never could have possessed; and the same reasons that confer an interest on the evidences of the extinction of species, as illustrating the like process still going on which geology reveals in the whole past economy of life, render the beaver of the Old and the New World worthy of special notice, as destined seemingly, like the Aboriginal Indian of this continent, to pass away from the records of living nature.

Sir Daniel Wilson—1858.

CHAPTER XIII.

ATTEMPTS TO PRESERVE THE EUROPEAN BEAVER—TAME BEAVERS—THE MARQUIS OF BUTE'S BEAVER COLONY—BEAVER HUNTING GROUNDS OF THE INDIANS—THE HUDSON'S BAY BEAVER RESERVES—"BEAVER FARMING"—LIFE IN ZOOLOGICAL GARDENS.

From the earliest history of the beaver in the Old World, which was written at the time when civilization had already made much headway, and was still spreading over Europe in great waves, overwhelming barbarism and effacing primeval nature forever within its limits, we gather that the preservation of the beaver from the destruction which appeared imminent, was a matter of much moment.

As late as the reign of Frederick the Great, of Prussia, (1712–1788), beavers were gathered together for this purpose, but as in every former instance, the enterprise was a failure, and the life of the European beaver was not in the least extended by this experiment. Some reason must be found for the failure to protect the beaver satisfactorily, and investigation into the matter might be profitable. The young beaver is easily tamed; beavers are frequently brought alive into our settlements, and are often made pets of, and allowed the liberties usually afforded to our domestic guardian, the dog. The number of individual cases recorded, if merely scheduled, would make a full chapter, and it would fill a portly volume to do justice to the many eccentric performances of these pets. The legs of tables and chairs soon attract the beaver as suitable substitutes for the delicate undergrowth of the forest, and boots and shoes, brushes, books, and other small articles, both ornamental and useful, serve to dam up the doorway, or to form a lodge under the bed or some other article of furniture; each work showing distinctly the instinct to build. So little choice of material do they seem to exercise, that

on the evidence of Mr. Lewis H. Morgan, we repeat the following extraordinary example :—

"In spring, summer and fall, the usual place of setting traps for beavers, is upon the dam. The trapper avails himself of the well-known habit of this dam builder to repair, at once, any breach made in the structure, over which his supervision is constant. Captain Wilson, before referred to, on one occasion, set three traps in this manner on the Grass Lake dam, using stakes instead of the pole slide, with the following results: Two days afterwards he found, on going to the traps, the three breaches fully repaired. Two of the traps held each a beaver, and both drowned; but notwithstanding the calamity that had befallen them, other beavers had finished their work. The third trap had disappeared from sight. He found the chain still held by the stake, which showed, on running it up, that the trap was buried in the breach made in the dam, under the materials used in its repair. Upon drawing it out, he discovered a duck in the trap, which had been caught and drowned, and that both the duck and the trap had been carried by the beavers into the breach and there buried."

The beaver possesses not only indomitable perseverance, but for its size has very great strength, and these, together with its shortness of limb, make it difficult to hold in a trap. For this reason the hunter aims either to drown the animal, or to catch it securely by the hind foot, which is proportionately large. Sometimes the beaver gets its fore foot into the trap, and instead of rushing into deep water and drowning, it struggles to escape even if the limb or part of it be lost in the struggle. When, however, as is not unfrequently the case, the hunter finds the beaver alive in the trap, it is completely tamed through exhaustion and despair, and may with safety be handled and taken from the trap. The beaver in its wild state recognizes man as an enemy, and constantly seeks to escape from his presence, and though in captivity this fear is forgotten, yet it must always be considered most timid and shy.

The great value once attached to the beaver, and the popular

conception of its engineering works, doubtless led to all the early and most of the recent efforts to preserve or perpetuate the species. The original life of our domestic animals and pets—horses, cows, sheep, pigs, dogs, cats and pigeons—furnishes the biologist with problems of the utmost interest; while the changes which have followed the domestication of animals within the range of our times, baffle even the most advanced speculations. The ostrich and camel in Africa; the elephant in Asia; the reindeer in Northern Europe and America, and the llama in South America, serve to show how nature accommodates her children to altered circumstances. This quality of adaptation is the fundamental requirement in the matter of domestication, and implies, firstly, that the animal can thrive in great changes of climate and environment; secondly, that it can adapt itself to a varying food supply; and thirdly, that its nervous system must be strong and improvable. By applying these tests to the beaver, it will be found that it does not come within the requirements, for, as a rule, it does not wander much, though originally it was very widely distributed, and its life is so much dependent on a full supply of fresh water, that this alone would prevent domestication except under very special circumstances. The question of food is also an important consideration, for though under semi-domestication, the beaver is found to thrive on most vegetable substances, still nature prompts the appetite for bark, and to satisfy this, a constant supply of fresh wood of a rather limited kind would be required, and even when this want is provided for, the condition of the teeth soon fails, and might be taken as an infallible sign of degeneration under altered circumstances. Finally, in the chapter on its anatomy, it will be shown that the beaver ranks singularly low in the scale of Comparative Psychology, and though this may seem contrary to the popular conception, it must be acknowledged that beavers have never made themselves conspicuous by any exhibition of *acquired performances*, but only display inherited instinct. The plausibility of the following story is interesting, though its truth is not vouched for. A tame beaver, around a camp, was becoming objectionable through its propensity for cutting everything in the camp, until the followers started it on a rough pile of felled trees; the beaver was made perfectly happy, and labored away, keeping its teeth in good shape

and also providing the camp with abundant firewood. Another account of a tame beaver, which appears in Wilson's "Early Notices of the Beaver," is told by a Mr. John Langton, and shows the fate of most of these creatures. The owner of this beaver had no furniture to gnaw, being an old trader married to a squaw, and living more like an Indian than a white man. "His favourite was quite tame, and very playful, and though he lived on the shore of Buckhorn Lake, the beaver seldom took to the water. It used to lie before the fire as contentedly as a dog; and it was not till winter set in that it became a nuisance. Poor old Bill McHugh's house was well ventilated, an open chink between the logs being thought very little of by him and his family; but the beaver was very impatient of such negligence, and used to work all night at making things airtight and comfortable without much discrimination as to the materials it employed. If Bill or his guests went to bed leaving their moccasins and tichigans drying before the fire, they were certain to be found in the morning stowed away in some chink or cranny; and stray blankets and articles of clothing were torn up by the industrious beaver for the same purpose. The consequence was that the poor pet was at length sacrificed; its body went into the old trader's pot, and its skin to market."

These anecdotes of tame beavers could be much extended if necessary, but enough has been said to show how thoroughly *domestic* the beaver becomes, (using this word to imply its adaptability to a life with man as a member of his household), yet when beavers are gathered together in colonies or families, and allowed only partial freedom, they do not thrive. Of the ultimate results of the early attempts in Russia, Germany and France to preserve the beaver, history only tells us that they failed, but without exact records of these experiments, they are of no practical value towards the solution of the problem, why, in the face of powerful legislation to preserve them, did the beavers disappear? The more recent attempt made by the Marquis of Bute, to establish a colony of Canadian beavers, near Rothesay, in Scotland, is a matter of intense interest at this juncture, and as the story of the founding of the colony, together with some details of its subsequent condition, has been told by Joseph Stuart

Black, the Gamekeeper of the Estate, we reprint the following notes from his report, which bears date 1887 :—

"In 1874, the Marquis of Bute having obtained four beavers, caused a space of from three to four acres in extent to be enclosed in the wood between Meikle Kilchattan and Drumreach, and placed them there. These not succeeding, his lordship, on the 6th January, 1875, obtained seven others. Of these, four succeeded so well that in 1878 I was certain of sixteen being alive, which makes an average increase of four each season. There is a further increase this season, but to what extent I cannot say.

"Arriving as they did in midwinter, these little animals, I can assure you, had a pretty hard time of it. However, after a few days' rest, having viewed the situation, they set vigorously to work to make themselves comfortable, and began to construct a dam* by forming a dyke or embankment across a small moorland stream running through the enclosure; at the same time they commenced to build a house to live in.

"The materials of which the dyke is constructed are wood, grass, mud, and a few stones which are used for the purpose of keeping the grass and smaller pieces of wood in their place until more is built on the top of them. They have continued raising this embankment to a certain extent every year, until it has now attained the following dimensions, viz. :—length, seventy feet; height in the deepest part, fully eight feet; breadth of base at deepest part, from fifteen to twenty feet, sloped inside, not straight across, but finely arched against the stream, so that it may the more easily resist the great pressure of water which it has to bear—perfectly level, so that when a *spate* of water comes down it may run evenly over the top from side to side. So substantially have they built it that no material damage has occured to it from all the floods that have passed over it. They use a number of the larger pieces of wood as props, by fixing the thick end into the ground and the small end on the top,

* The word "dam" is used throughout this account to signify the pool formed by the dyke or embankment.

then build on the top of these, so as to fix them firmly. It would require to be seen to appreciate the great skill displayed in its construction; as I think it would tax the energies of a Bateman or a Gale to make a better with the same materials. If any damage does occur, they immediately find it out and repair it. I have seen them swim along the edge of the embankment, carefully examining it to ascertain the part most needful of repairs, then go to work with a will to rectify it. The dam is now seventy-eight yards long of still water.

"Besides the dam already mentioned, upon which they bestow great care in its construction, owing to their house being built in it, they have other seven, some larger, some smaller; one of them having an embankment 105 feet long, and an average depth of three feet. These serve as places of refuge if the beavers are disturbed when out roaming about in quest of food or felling the trees, also as a waterway for conveying their food, when storing it past for winter.

"In the construction of their dwelling the same kind of materials are used. As to how they build it: you must understand that for a considerable distance along one side of the stream or burn the ground rises in a steep bank, but about twenty yards above where they began to build the embankment for the dam, there was a small level spot which they selected. Then at the bottom of the water they burrowed in three or four feet, rose up eight or ten inches, scooped out a space large enough to hold themselves, broke a hole in the surface about six inches in diameter, then began to cover it over with sticks, grass, and a few stones, always keeping it open in the centre by placing a few sticks perpendicularly, so as to act as a ventilator, and as the water rose in the dam and the family increased they continued to build and enlarge the house, cutting their way up and forming their chamber or chambers inside, until it had now attained the following dimensions at the surface of the water (which is here about four feet deep), viz.—height about five feet, length and breadth about nine feet, having a door at both sides placed at the bottom of the water so as to prevent their natural enemies from following them, chief among which is the wolverine, although happily for both them and us there are none of these here to disturb them.

"To secure themselves against the winter storms they commence about the middle of September and give their house a coat of mud all over. It is with the mouth and forefeet, which are formed more like hands than feet, that they convey the materials of which their embankment and house are made. They do not use their tail, as was at one time said, for plastering on the mud, but their forefeet, with which they very carefully stow it in among the sticks. As to what they use for a bed to lie on, it is wood shavings, which they prepare in the following manner: after using the bark for food, they place the stick on end, holding it with both feet a bit apart, then with their teeth pare it down into fine shavings. They are very cleanly in their habits, as they often clean out their house, not casting away the refuse, but using it either on the top of the house or the embankment of the dam to patch up a hole.

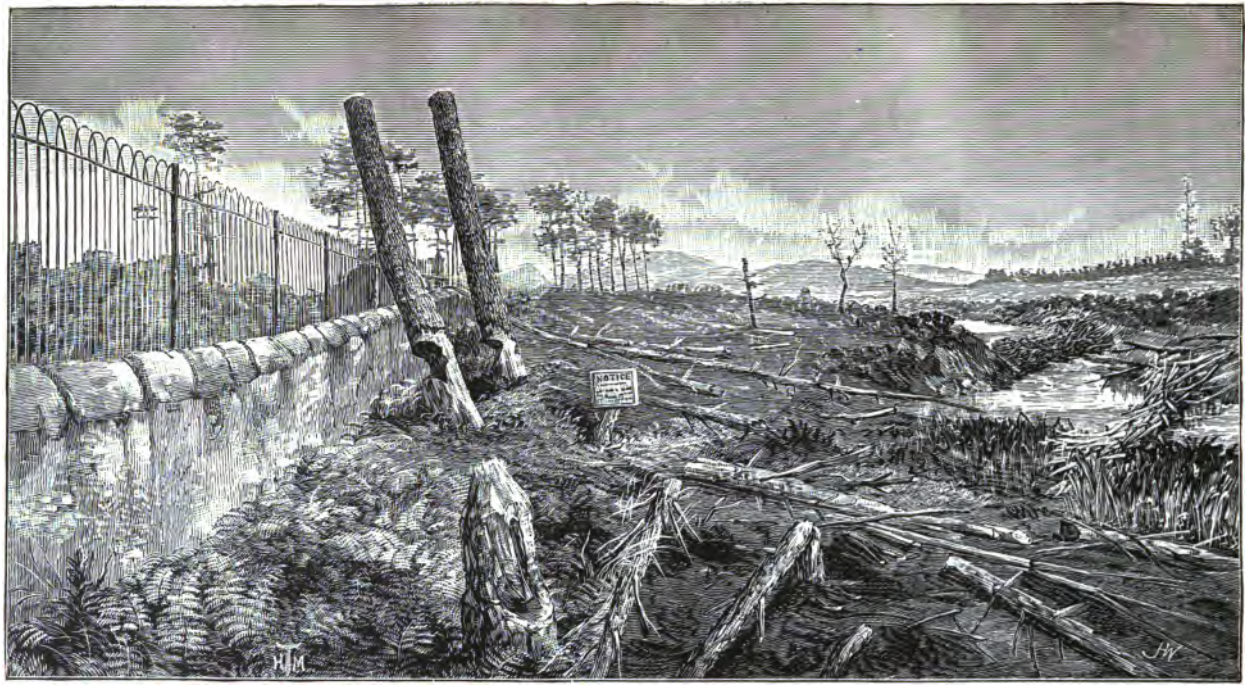
"Their food in winter consists wholly of the bark of trees; had they a choice I have no hesitation in saying they would prefer the willow and poplar. These not growing in the enclosure, they had just to adapt themselves to circumstances, and take a share of what trees they could get, consisting of oak, plane tree, elm, thorn, hazel, Scotch fir and larch. Of the hardwood, they seem to prefer elm to plane tree, then oak, of which they eat sparingly. Of the firs, the Scotch has the preference; as for the larch they did not touch it till early in 1878, since which time they have taken to it very well. As for the alder and spruce fir, they eat almost nothing of them. Along with all these, we have always given them a supply of willow. In summer they eat freely of the common bracken, likewise grass, and young shoots of every description growing in the place. In autumn they grub up and feed upon roots, chief among which is the tormentil (*Potentilla tormentilla*), better known to Scotch people as "tormentil root," and the young tender shoots of the common spurts before they appear above ground, at the same time cutting down a tree now and again and feeding on the bark.

"As to the tree-felling it is all done at night; the number which they have cut down amounts now to 187 trees from five feet in circumference downwards. These are all forest trees, besides a great many

smaller bushes. Before cutting down a tree, they mark it all round at the height at which they wish to cut it. They begin to cut at the opposite side to which they intend the tree should fall, invariably making it fall with the top to the water. Where they grow near enough, they make them fall across the stream or dam, causing many to suppose that they are so placed to form a bridge, whereby they may cross from one side of the water to another. They do not require a bridge, they can swim, and rather than cross over a prostrate tree they dive under it. My impression is they are so placed to break the current of the water when the stream is flooded; also if convenient they take advantage of building a dam where some of the trees lie across the water. Those lying across in their principal dam are utilized in storing up their winter food, these stores being built on the upper side of the trees, so that they cannot be swept away with the winter floods.

"When cutting the trees they use their teeth, on the same principle that a forester does an axe, always keeping plenty of open space, so that they can cut past the centre of the tree on one side before beginning on the other. It is in the latter end of autumn they commence to cut down trees for winter food. Having cut them down they speedily strip off the branches, cutting them into lengths to suit their strength for dragging them away to the dam, where they store them in different places near their house, so that they may have sufficient food, although the dam may be frozen over, or the ground covered with snow. What is left of the trunks of the trees that they cannot drag away, they feed on at leisure, eating the bark.

"Besides the work above ground which I have tried to describe, they have done a great amount of underground work, such as cutting channels in their dams, and making burrows. These burrows they make by cutting a road from the middle of the dam for several yards into the dry ground, where they scoop out a dome-shaped burrow from eight to ten inches above the level of the road, then cut a hole through the surface and cover it over with sticks and grass so as to act as a ventilator. Here they live and feed in security and contentment. Some of the roads to these burrows are from fifteen to twenty



THE MARQUIS OF BUTE'S BEAVER ENCLOSURE—JULY, 1889.

yards long, and so level that the water follows them in the whole length.

"As to the time they bring forth their young, from my own knowledge I cannot say. I have seen it stated to be January, and also the beginning of May. I can say nothing against that, judging from the size of the young when I first saw them in the second week of June, the oldest litter being about the size of a full-grown rabbit, and the youngest not half that size.

"From careful observation, I have good reasons for believing they have only one at a birth. One thing I am certain of, they have two litters in the season. Beavers are a class of animals that are very timid, their sight, scent and hearing very keen, so much so, that it is with great caution they can be approached near enough to see what they are doing. They are under cover all day from seven o'clock in the morning till seven in the evening. When one comes out, it floats on the surface of the water, carefully surveying the whole scene around, sniffing the air, and if no danger is apprehended it dives and disappears. In two or three minutes, a number of the colony begin to appear and disperse themselves, some to swim and sport about in the dam, while others go in quest of food. If one of them espies danger it strikes one sharp, loud stroke on the water with its tail, when all of them that are out come tumbling into the dam and disappear.

"They will allow of no laziness in any member of the colony; if any such there be, they are beaten and driven out to live as best they may. These so driven out generally roam about, making a burrow here and there, where they live for a few months and die."

Such records are most valuable, but unfortunately, errors of observation or of judgment in recording, necessitate some comment in presenting them together with conflicting evidence. A visit to the "enclosure" in July 1889, gave an impression of a condition of things quite different to that reported, which may be substantiated by reference to the accompanying engraving, copied from photo-

graphs taken at the time. Mr. Black had died about a year before, and the beavers were placed under the charge of the game keeper, Mr. John Wilson, who stated that the number of animals, as estimated by the amount of work done, had been much exaggerated; that in 1883, when his lordship wished to send to the Fisheries Exhibition specimens of the beaver (whose tail had been described as "a true portion of a fish attached to the body of a quadruped"), the enclosure was completely ransacked before a couple could be secured. The trees in the enclosure, some measuring over sixty inches in circumference, covered the ground in all directions giving the place an appearance of desolation, which at first was most disappointing. Two trees standing near the railing (shown in the engraving) having been partially cut by the beavers, the tops were cut off to save any damage which might have been caused by them falling on to the railing; unquestionably *these trees would not have fallen with their tops to the water.*

The question of the birth of young beavers is still the cause of much speculation, and the most opposite opinions are stated with dogmatic certainty; yet, no satisfactory proof is offered to establish the facts, and many interesting points remain to be settled. No scientific proof has ever been offered to substantiate the claims as to whether beavers are born with their eyes closed or open, and testimony is about equally divided on this point; but as to a second litter in the season, the preponderance of evidence is unmistakably against the theory, notwithstanding Mr. Black's expressed certainty.

Universally, the beaver stands as the type of industry, and the works we have described must have given conclusive proof of this; but unfortunately, fable has considered it necessary to create a "*paresseux*" in the beaver paradise, as if for the pleasure of banishing it to outer darkness. Mr. Black saw beavers wandering about the enclosure, evidently outcasts from the little colony, yet, he was utterly without grounds for asserting that these creatures had been banished because they were lazy.

Cartwright's opinions on the same subject were as follows,

"Sometimes a single beaver lives by itself, and is then called a *hermit* or *terrier*. Whatever may have been the cause which has separated these individuals from society, it is certain that they always have a black mark on the inside of the skin upon their backs, which is called a saddle, and distinguishes them from the others. This separation from society may arise from their fidelity and constancy to each other, and that, having by some accident lost their mate, they will not readily pair again. The mark on the back may proceed from the want of a companion to keep that part warm." Cartwright also claimed to have the advantage of personal observation, but Dr. Godman says of him, "this actual observer repeats all the trash of preceding hearsay-writers nearly in their own words."

Le Père de Charlevoix, author of the "Journal d'un Voyage dans l'Amérique Septentrionale" (1744), in writing from Quebec, 1st March, 1721, discourses at length on the curiosities of the country, of which "the most singular thing that is seen is the beaver. The savages were formerly persuaded—if one were to believe some stories—that the beavers were a kind of reasonable animal, which had its laws, its government and its particular language; that this amphibious people made choice of commanders, who, in the common work, distributed to each its task, posted sentinels to give warning of the approach of an enemy, punished or exiled the idle. These so-called exiles are apparently those which are called burrowing beavers, which in fact live separate from the others, do not work, and live under the ground, where their sole object is to carefully make a covered road leading to the water. They can be recognized by the small quantity of hair that they have on their backs, the result evidently of rubbing themselves constantly against the earth. In addition to this they are thin, the effect of their idleness; they are found more frequently in hot countries than in cold."

Enough has been said to show that marvellous tales were expected of travellers in those early days, and some, doubtless, have been forced to build up their stories on a very slight foundation, while others have evidently recorded their own observations, heightening these, however, by deductions of a most imaginary nature.

The truth concerning the thin idle wanderers who soon die, is most likely that they are cases of sickness or disease, which would also account for the poor condition of the fur and might perhaps explain the mysterious "saddle." In the appendix to this volume an account is given of the parasite which infests the beaver,—*Platypsyllus castoris*—and as it is generally found that animals seriously affected by parasites become thin and sometimes sicken and die, and that animals in captivity are more subject to the attacks of vermin than when in their native condition, it is possible that Mr. Black's "idle beavers" were in too unhealthy a condition to care for work. In 1887, the keeper explained that when a beaver was seen swimming about much in the daytime its dead body was soon looked for, as they seldom moved about during the day unless they were sickly.

The great difference between these attempts of the white man to perpetuate the beaver and the method adopted by the Indian is all the difference between art and nature. The white man has made artificial enclosures for the beaver; the Indian reserve was a natural beaver district, chosen by the animals as a suitable home and guarded by the Indian from encroachment. Of the regard which beavers had for certain localities Charlevoix says, "There are some places that the beavers seem to have such an affection for that they do not appear able to leave them, although they are always uneasy there. On the way from Montreal to Lake Huron by the great river, one never fails to find every year at the same place a lodge which these animals build or repair every summer; for the first thing the voyageurs do who arrive there earliest, is to break the lodge and the dam which provides it with water."

The Hudson's Bay Company showed their wisdom by adopting the Indian methods of dealing with nature, and in proportion to the closeness with which they follow these methods so is the measure of their success. They have systematically set aside certain islands along the coast of Hudson's Bay as beaver reserves, those favored most by the beaver being chosen. We have seen how every third year a family of beaver kittens matures, and the Company considers it wise to visit these islands every third year and carefully gather

a crop of beaver pelts representing the approximate increase based on the known habits of the animal. This triennial hunt is conducted in the most orderly and scientific manner, so as not to disturb the colonies, and those who have accompanied the parties give astonishing accounts of the condition of things witnessed, the beavers having almost completely lost their fear of man, and their works assume the most elaborate proportions. The time will soon come when these reserves will be worked over, and then the limitations will bring about the inevitable result, a sudden disappearance of the busy hosts. If a single family of beavers, captives on the Isle of Bute, felled 187 huge forest trees, besides a great quantity of small bushes, within ten years, imagine the destruction which must follow the work of a colony of beavers in a well chosen and thoroughly advantageous locality.

For over a thousand years men have discussed and experimented upon beaver farming. The accompanying clipping is a very comprehensive and typical proposal :

A BEAVER RANCHE.

To the Editor of the Mail :

SIR,—A good deal of attention has been drawn to the beaver ranche project at Sudbury, and the practicability of the enterprise is generally conceded. The profits, if successful, will be large ; and the country will be saved the disgrace of allowing the most intelligent and domestic of the inferior races to become extinct, as will be its certain fate unless protected by mankind.

The cost of the attempt will be comparatively small, and the result will be to develop an industry as extensive and interesting as bee culture has already proven. Some legislation will be required to protect the "infant industry," and we trust no undue delay will prevent the success of the enterprise next spring. In connection with the subject I might suggest the suitability of the Sudbury district for fish culture—abounding, as it does, in small lakes and streams, which, if stocked and protected, would satisfy both the sportsman and the political economist—an inviting field for health, sport and profit.

Yours, etc., H. S. S.

Sudbury, Feb. 2, '87.

It will be clearly observed that sentiment is at the bottom of this scheme, and that no new treatment of the animal is proposed. The

facts seem utterly overlooked that the beaver is not yet domesticated and that innumerable attempts in America and Europe have proved failures. To be sure, if the beaver is not too closely hunted it will live the longer in any locality, but the question is only one of a few years at most, and before this century closes we may find the last survivors within a railed enclosure of some zoological garden, attracting the attention of the populace.

Unfortunately the beaver does not make a very attractive exhibit, for though its works even in a small enclosure are very wonderful, its nocturnal habits disappoint the masses who naturally expect to find it at least cutting down trees, if not building lodges and dams for the public edification. In close captivity the animals soon become tame, and their nature and condition change as the consequence of the sudden alterations—loss of exercise, monotony of surroundings, and entire novelty in diet. They seldom are seen except towards the dusk of evening, when they come out for food, and even the older specimens are comparatively shy. Indian corn is a staple food in many zoological gardens, but cabbage, carrots, and in fact almost the whole range of culinary vegetables are greedily devoured by the captive beavers. Gradually the lustre of the fur disappears, the teeth lose their keen edge and the energy flags, till the industrious aquatic engineer of popular conception becomes a merely animated specimen apparently waiting admission to the "*atelier*" of the anatomist.

"NO PERSON ALLOWED WITHIN THE BEAVER ENCLOSURE."

ANATOMY—OSTEOLOGY—TAXIDERMY.

"The great Master (Cuvier) in whose dissecting rooms, as well as in the public galleries of Comparative Anatomy, I was privileged to work, held, that 'species were not permanent:' and taught this great and fruitful truth, not doubtfully or hypothetically, but as a fact established inductively on a wide and well-laid basis of observation, by which, indeed, among other acquisitions to science, Comparative Osteology had been created. . . . . .
To suppose that co-existing differentiations and specialisations, such as *Equus* and *Rhinoceros*, or either of these and *Tapirus*, which have diverged to generic distinctions from an antecedent common form, to be transmutable one into another, would be as unscientific, not to say absurd, as the idea, which has been bolstered up by so many questionable illustrations, and foisted upon poor 'working men,' of their derivation from a gorilla!"

—Richard Owen, F.R.S.—1868.

"I must enter my protest against the singularly imperfect form in which most of the specimens in zoological and ornithological museums are presented, owing to the low level at which, speaking generally, the art of taxidermy remains. . . . . .
While in England good birdstuffing is rare and very dear, in some continental cities, there are to be found taxidermists who will stuff groups of birds or animals in such a manner as to give the most spirited representation of what they were in life."

—Professor W. H. Flower.—1868.

CHAPTER XIV.

METHODS OF CLASSIFICATION—FORMER RELIANCE ON EXTERNAL CHARACTERISTICS—THE OFFICES OF COMPARATIVE ANATOMY AND COMPARATIVE OSTEOLOGY—TAXIDERMY AS A FINE ART—MUSEUMS AND THEIR FUNCTIONS.

The immense value of zoological gardens to the school of Comparative Anatomy is a matter that does not often suggest itself to the casual visitor to these most popular places of resort in all well appointed educational centres. The "Jardin des Plantes," and the "Jardin d'Acclimatization," in Paris, are, perhaps, the most scientific institutions of this kind, and therefore, students of natural history are much benefited by visits to these gardens and the organizations associated with them.

The zoological garden should be recognized by all thoughtful observers as the introductory department to the comprehensive science of Zoology. The school of anatomy relies on a varied supply of specimens for profitable work, and this school should leave as its contribution to the public, who usually support institutions of this kind, a well arranged gallery of osteology and taxidermy.

From the most superficial reading in our day, one gathers some crude ideas of the science of life with all its interdependent relations, yet, few can pursue the subject beyond the most primary considerations, though all intelligent readers wish to understand the great principles which connect all living forms.

Confining ourselves strictly to the highest order of living things —the vertebrates—we all recognise the similarity of structure, and at the same time the immense differences which afford special fitness

for certain ends. The wing of the bird and bat, the fin of the whale and seal, and the differentiation in the anterior limbs of the mole, the sloth, the cat and the horse, are all simply variations of the one type—the hand of man. Science concerns itself in arranging in exact order every phenomenou that comes under the observation of the student, and lays before the mind an harmonious plan of all the Creator's work, which must ever claim man's highest admiration.

Before the science of Comparative Anatomy was the accepted test of affinity, the attempts to arrange the Animal Kingdom into satisfactory order varied continually according to the methods applied. All tests were more or less superficial, and it is curious to trace the shifting of some animals from group to group, as science advanced and the principles of classification were more fully comprehended. Thus, for example, the wolverine until very recently was classed with the *Ursidæ*—the bears—because it walked in the same manner as a bear, that is, it was a plantigrade animal, but to-day the wolverine is clearly established as a member of the *Mustelidæ*—the weasel family.

Up to the year 1700, the beaver, so far as is known, had never been submitted to the ordinary tests of anatomy or dissected to discover its characteristics, but in October of that year M. Sarrasin, *Médecin du Roi en Canada*, addressed a letter to the "Académie des Sciences," giving the results of his efforts in this direction. His notes were carefully recorded and very extensive, but their scientific value is much impaired by the introduction of statements accepted on the authority of trappers, who treated him as they have invariably treated other enquirers. He stated that "the largest beavers are three to four feet long, by twelve to fifteen inches wide from haunch to haunch. They weigh from forty to sixty pounds, and live from fifteen to twenty years. The beaver described here was caught in a small lake about twelve or fifteen miles from Quebec, and weighed fifty pounds." The external features of the beaver are among its chief characteristics, beginning with its wonderful teeth and ending with its perfectly unique tail. The head is not unlike that of the rat, though the nose is flatter and makes the head appear

shorter and broader. The eyes are dark blue and very small in proportion to the size of the animal—about half an inch in diameter is the maximum measurement—and highly convexed to enable them to be used under water; they are, according to M. Sarrasin, furnished with three separate lids. The ears are also small, quite round and concealed in the fur and hair. When the pellage is prime, that is in its perfect stage, a shaggy, loose growth of long hair covers the entire head and body to the butt or base of the tail, diminishing on the lips, eyelids, feet and legs; the colors and textures of both hair and fur or wool have already been discussed. The anterior feet or hands, as they have not inappropriately been termed, are so dexterous as to favor comparison with the hands of the monkey; with them the creature builds the dam and the lodge, and excavates the burrow, and they are also used to convey food to the mouth in a truly astonishing manner. Though the front feet are not usually employed in swimming there is a very perceptible web joining the third and fourth digits, which does not seem fitted for any apparent purpose, unless it might be to facilitate the handling of mud in the plastering of the lodges or dams.

BEAVER'S HEAD.
(STUDY FROM STILL LIFE.)

The powerful hind feet, with their development of web extending to the extreme points, afford the perfect model for aquatic life and may be likened to the feet of the turtle. The large heel-pad and strong nails enable the creature when on land to stand upright firmly on the hind feet, a position very generally assumed when at work. On the second toe there is a most remarkable double claw or nail, which apparently is only used for combing the fur. Owing to the inequality in the proportions of the legs to the feet, and also partly to the fact that the toes have a very appreciable inward curve, the gait of the beaver is waddling and ungraceful. Its awkwardness and clumsiness seem heightened by the difficulty in managing its cumbrous tail, which, though sometimes slightly elevated or even curved upwards, is generally dragged along the ground and moves from side to side at each step.

Few authorities agree in their descriptions of the beaver's wonderful tail. In Bennett's "The Gardens and Menagerie of the Zoological Society Delineated," (1834), an extended article on the beaver appeared, in the course of which its anatomy was carefully treated. The whole of this article was reprinted by Mr. Lewis Morgan in his work on "The American Beaver" but the portions of greatest value are Mr. Bennett's personal observations, among which are the following remarks :—

"Among the numerous, widely dispersed and prolific tribes of animals which compose the extremely natural order called by Linnæus and the writers of his school 'Glires,' there are none perhaps which possess so many claims on our attention as the well marked and circumscribed little group on the history of which we are about to enter. The first and most essential character of the order is obviously derived from the great development of their incisor teeth; and this peculiarity in structure as might naturally be expected is connected with a peculiarity in habits equally remarkable. So striking, indeed, is the propensity to gnawing which distinguishes these animals that many late zoologists of the French school especially, have thrown aside the older designation applied to them by Linnæus, and adopted in its place the expressive name of 'Rongeurs or Rodentia.'

"Of this faculty the beavers appear to exhibit the highest degree of development; their powerful incisor teeth contribute, in an especial manner to supply them both with food and shelter.

"The beavers may be regarded as almost typical of the order to which they belong. They exhibit, however, in their external form several striking modifications peculiar to themselves. Of these the most remarkable consists in their tail, which differs in structure from that of every other quadruped. This organ which is nearly half as long as the body, is broadly dilated, oval, flattened both above and below, covered at its thickened base alone with hair similar to that which invests the rest of the animal, but overlaid throughout the greater part of this extent with a peculiar incrustation which as-

sumes the form of regular scales closely resembling those of fishes. It is not impossible that the tail may have the power of absorbing water, like the skin of frogs, though it must be owned that the scaly integument which invests that member has not much of the character which generally belongs to absorbing surfaces."

Mr. Morgan's description, illustrated by the accompanying photo-engraving (direct from nature), is very exact and the subject may be concluded by the following extracts from his account: "In form, structure, and uses, the tail is the most conspicuous organ of the beaver. It is nearly flat, broad and straight, and covered with horny scales of a lustrous black. These scales, which are such in appearance only, cover every portion of the surface both above and underneath. The tail is attached to a posterior projection of the body extending some inches beyond the pelvis, and is furnished with strong muscular attachments, by means of which its movements are determined. Its principal uses are to elevate or depress the head while swimming, to turn the body and vary its direction, and to assist the animal in diving. It is also used to give a sign of alarm to its mates. When alarmed in his pond, particularly at night, he immediately dives, in doing which the posterior part of his body is thrown out of water, and as he descends head foremost, the tail is brought down upon the surface of the water with a heavy stroke, and deep below it with a plunge.

"I have heard it distinctly for half a mile, and think it can be heard twice or three times that distance under favorable conditions.

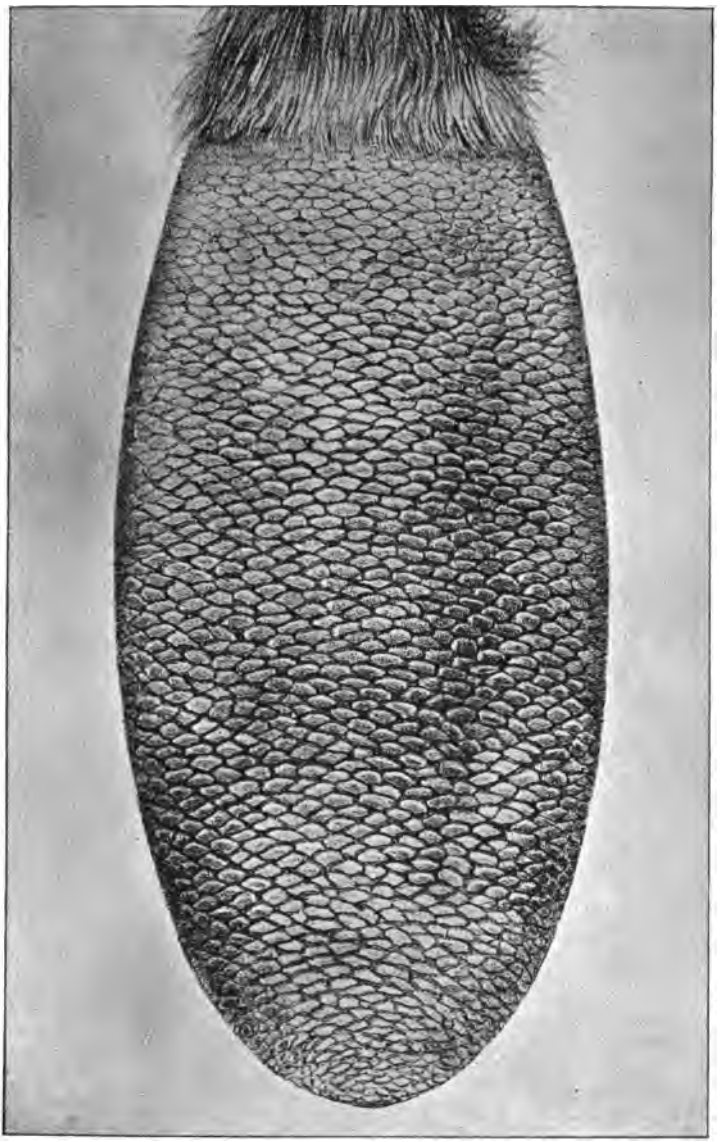
"It is capable of a diagonal movement from one side to the other, and *vice versa*, and also of assuming a nearly vertical position. This enables them to use it as a scull, which they do when entirely under water, and swimming at the most rapid rate. It is most flexible at the intersection of the tail proper with the posterior projection of the body to which it is attached. The muscles for its down motion are several times stronger than for either its upward or lateral movements. He is able to turn his tail under him and sit upon it, or to use it extended behind him as a prop while sitting upon his hind feet.

"The posterior extremity of the beaver presents a singular formation. The body diminishes in size gradually from the hips, and terminates in a flat scaly tail, which, measured from the sacrum, is about 18″ in length; the first 8″ being covered with hair like the rest of the body. The scaly portion commences abruptly with a width of about four inches, and terminates with a rounded extremity. The scaly portion is slightly convex above and below, thin at the margin, and is covered with a black, tough, scaly epidermis. The scales are somewhat irregular in form and size, the most usual form being sub-hexagonal, about 32‴ in length, and 12‴ in width. They are arranged transversely in respect to length, in the so-called quincunx form, and they diminish in size toward the end of the tail; across the middle of the tail the number is 19 or 20 above, and 20 or 21 on the under surface. A few short, broken hairs pass out between the scales.

"The tail is composed largely of a dense fatty tissue, upon this lies the derm or skin, its outer surface being serrated, with the points of the serratures toward the end of the tail. Over the serratures is extended the tough, horny epiderm, which is inflected under the serratures, so as to present the imbricate appearance."

Some idea of the popular conception of the beaver's tail can be gathered from early illustrations, and particular attention is called to the accompanying figure, and also to the several reproductions which appear in preceding chapters.

The muscles of the entire order of mammals are studied and described comparatively to the standard of the human frame. Modifications in connection with certain peculiar functions occur in every class, and these are the only parts necessary to consider in a monograph such as the present. In the order Rodentia, and in the beaver pre-eminently we have the development of the "masseter muscle" in its highest degree as it is on this that the creature relies for its power to cut and grind hard woody fibres. The extraordinary development of the muscles to move the jaws gives the beaver's face a full, rounded appearance, and not only are the tendons connected



TAIL OF THE BEAVER.
(DIRECT FROM NATURE.)

with the use of the cutting teeth, located here, but also those which give the lateral or grinding motion necessary for the mastication of the tough bark and vegetable substances. The muscles of the whole system are powerfully developed and their attachment to the skin is so firm that only an experienced hand can remove the skin without leaving great layers of muscle adhering to it. The neck, the tail, and the limbs are each provided with muscles, strong in proportion to the unusual amount of work to be accomplished by these members.

Of the internal organs so many are peculiar to the beaver, that naturalists are continually disagreeing as to the strict classification of the *genus*. The cavity of the mouth and the cheeks shows a peculiar provision for the work the creature is destined to do. The arrangement is such that when the incisors only are being used, the tender mucous membrane of the mouth is completely protected from the rough splinters of wood, etc., which might otherwise injure these delicate parts. The space between the incisors and the molar teeth is very narrow and is covered with a hard, dark-colored skin, while the cheeks are furnished with a lining of coarse hairs, sufficiently long to prevent any particle of the chip passing, which would injure the tender palate, tongue or cheeks.

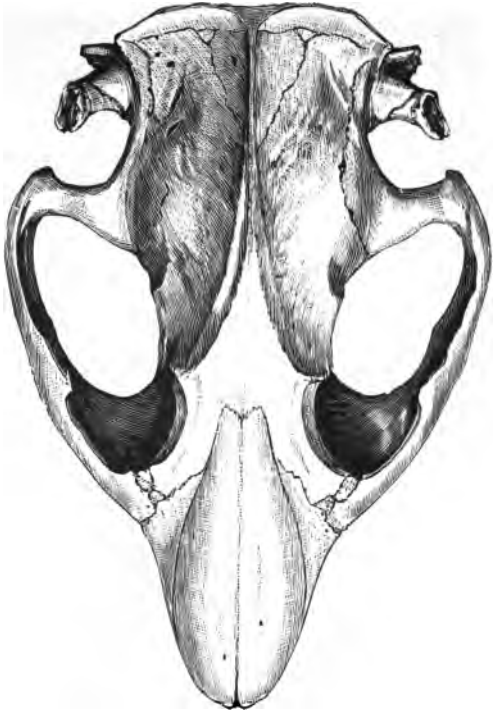
The stomach of the beaver is similar in most respects to those of the other members of the order Rodentia, yet has some minor peculiarities. The cœcum (corresponding to the vermiform appendage in man) is, in the beaver, larger than its stomach, for while the latter holds but little over three pints, the capacity of the former is nearly six pints.

In the beaver, as in all diving mammals and birds, a provision exists for suspended respiration. It is an enlargement of the inferior *vena cava* as it passes through the fissure of the liver, and constitutes a sinus in which a considerable quantity of blood may be temporarily arrested. This discovery was communicated to the Wernerian Society of Edinburgh, by Mr. R. Knox, in the year 1823.

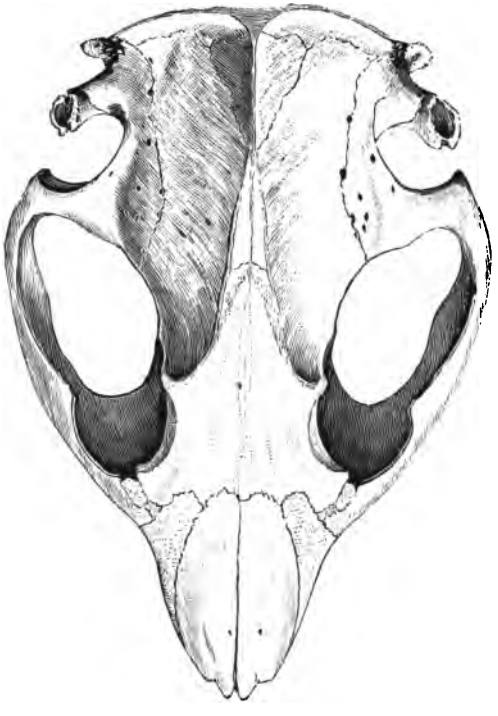
The brain of the beaver contains the insurmountable proof of the sagacity of the animal, and shows the low mental power with which it is endowed. The lowest in the scale of mammals is the "Duck-billed beaver," of Australia, (*Ornithorynchus Paradoxus*) which was described by Mr. William Sharp, in Harper's Magazine for May, 1890, as "an animal that is part fowl and part beaver." Next in order are the Marsapials or Pouched Animals, with the Kangaroo as the type; the only example in America being the Opussum (*Didelphys Virginiana*), of the Southern States. The brains of both these classes according to Professor Richard Owen, resemble those of birds in the absence of the *corpus callossum*; and the brains of the Rodentia are only one step higher. The average weight of brain to body in the beaver is stated as 1 to 532; the average for the whole class mammalia according to Leuret, is 1 to 186; and in man it is 1 to 36.

The secretion which is contained in the castoreum glands, is undoubtedly the most peculiar distinction of the *genus* Castor. This waxy substance, with its queer odor and questionable economy to the beaver, is found in two large pockets or sacs situated near the butt or base of the tail, enveloped in muscles specially fitted to enable the discharge of any portion at will. They do not appear to be connected with any other organ, and are akin to the musk glands of the Musquash or the civet glands of the Civet Cat (*Viverra Civetta*).

The following note is taken from Dunglison's Medical Dictionary (1874) :—"Castor or Castoreum; a peculiar, concrete matter found in both sexes of the beaver. Odor—strong, unpleasant, peculiar. Taste—bitter, subacid. Color—orange-brown. Uses—anti-spasmodic." The variation in the analyses of castoreum, constitutes one of the two points of difference between the European and the Canadian beavers. The other difference is found in a close examination of the bones of the skull, which is made the grounds of a prolonged controversy with tedious conflicting evidence, as it is on these two points alone that the new species is based. As, however, this monograph is a popular rather than a scientific treatment of the subject, the details of many purely technical discussions are omitted but the results of all important investigations are recorded.



(CASTOR EUROPÆUS.)



(CASTOR CANADENSIS.)

SKULLS SHOWING THE FEATURES ON WHICH THE SPECIFIC DIFFERENCE IS BASED.

In the "Mémoires de l'Académie Impériale des Sciences de Saint-Petersbourg, 1855," Dr. J. F. Brandt gave an account of his researches among the beavers of Russia, which is reprinted and discussed *ad item* by Dr. W. W. Ely, in the appendix to Lewis Morgan's "The American Beaver." Dr. Brandt's conclusions may be summed up in the following words: "With respect to the nasal bones, there remains only their more considerable length in comparison with the skull, as a mark of the European beaver." Dr. Ely's investigations and comparisons have resulted in an intermediate position, which is thus stated: "The extremes of difference, in their aggregate, on the one side and the other, are sufficiently striking to justify us in regarding them as varieties of one and the same species; while the want of constancy in these peculiarities suggests the inference, that these variations are due to long separation of the races, and to accidental causes, rather than to original diversity of the stock."

The skull of the beaver is stronger and more solid than that of any other rodent. Many rough prominences mark the strong muscle attachments. The lower jaw is very massive and also shows clearly the powerful muscular processes. The skeleton has several minor generic characteristics, but none are really remarkable if we except, perhaps, the vertebræ, which are divided into seven cervical or neck; fourteen dorsal, or back; five lumbar, or loins; four sacral (confluent) forming the pelvis or haunch; and twenty-five caudal, or tail; representing in all fifty-five vertebræ. In the tail, the bones gradually diminish in size and lose the vertebral character, "in the eighth or ninth the spinous processes disappear; in the tenth the spinal canal becomes a mere groove; and toward the end of the tail the transverse processes lengthen and broaden becoming bifid or double."

The preservation of the skin and the possibility of investing it with an appearance of animation, are matters under the control of the taxidermist, whose principal requirement, if these ends are to be satisfactorily accomplished, is a knowledge of the poisons which may safely be used to prevent the ravages of vermin; he must also possess a knowledge of anatomy and be familiar with the habits of animals; and in addition to these, be endowed with the genius of the

sculptor, to pose the figure and give expression; he must, in fact, be chemist, anatomist, naturalist and artist in one.

A Natural History Museum should never be considered as merely a public resort for pleasure; it has no affinity to the "dime museum" with its monstrosities, and "chamber of horrors" for popular diversion, but should aspire to the level and assume the offices of the art gallery and the public library; in a word, it should take the foremost place among popular educational institutions. It is a manifest misapprehension on the part of the officers of a museum to reject with indifference a common local specimen, in order to display a parcel of trash from a foreign country, which, without history or value, has as its only merit that it has been carried a long way. No stronger proof of this tendency need be given than the fact that the Museum of the Natural History and Geological Survey Department of Canada has just secured, as a priceless acquisition, a specimen of the recently exterminated American buffalo (*Bison Americanus*), which, we believe, will constitute the only perfect example in all British North America; while fifteen years ago, specimens would not have been thought worth the cost of transport. Though it may become the dignity of a government to enrich the national museum with exchanges from foreign countries; or in the case of university collections, it may be necessary to obtain comparative types from abroad; yet, for local societies to attempt more than the careful collection and preservation of local specimens, implies losing the substance by grasping for the shadow; and though a national museum may achieve results beyond the aspirations of a local society, the latter, as a specialist, working the details of a section, would become of indispensable value. The Grosvenor Museum, Chester, under the curatorship of Mr. R. Newstead, F. E. S., furnishes a type of all that a local museum might and should be.

Museums are divided, by Professor Flower, into those intended for the instruction and the enlightened amusement of the people, and those intended for advanced students; and he then defines a well arranged educational museum as "a collection of instructive labels illustrated by well selected specimens." Simple as this

ARTISTIC TAXIDERMY APPLIED TO THE BEAVER.

requirement may seem, it implies both patient work and vast resources. To select typical specimens for the group presented here, as an illustration of artistic taxidermy applied to the beaver, more than a score of specimens were rejected, and a search extending over two years accumulated only enough material to set this one group. With regard to instructive labels and orderly arrangement, surely it will never be permitted in the future to mark a case "*For large specimens generally*," under which the visitor is called upon to admire a sort of "happy family" composed of the most heterogenous elements.

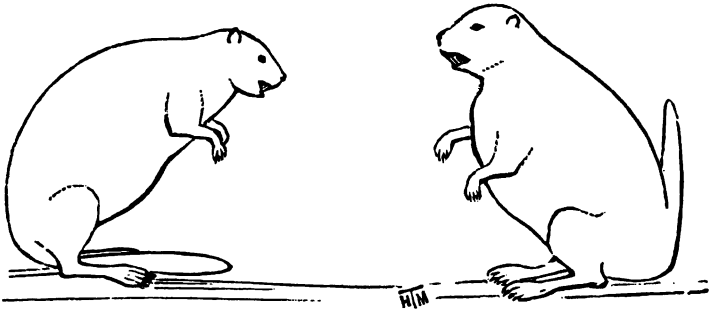
Taxidermy, as a fine art, may be said to have originated in our own day, though the "science of preserving animal tissues" dates back centuries before the Christian era, when the Egyptians not only mummified their kings and princes, but also embalmed both cats and ibises with a thoroughness which was intended to withstand the ravages of all time. A hundred years ago, taxidermy had scarcely progressed beyond the idea of preserving the external tissues, for surely the stuffed caricatures yet to be seen*, were never meant to convey a likeness of the living animal.

There are still many opponents to pictorial or artistic taxidermy, but arguments must be based on other grounds than those of public instruction, for on this point no differences of opinion could exist. The difference between the display of artistic taxidermy and that which is not artistic, suggests the title of a recent paper by W. Stanley Jevons, M.A., LL.D., F.R.S.,—"The Use and Abuse of Museums."

The history of the beaver has been told; but to illustrate it, can there be any comparison between the specimens which have furnished a still-life study to the artist who engraved the frontispiece of this volume, and the following sketches taken in public museums in Europe? The Rev. H. H. Higgins speaking of the Free Public Museum, Liverpool, "under the charge of its excellent curator, Mr. T. J. Moore, Corr. Mem. Z.S.L.," says, "In a public museum, ought it

* In the Natural History Museum of Edinburgh, Scotland, mammals collected by Samuel Hearne in America, just a century ago, are still exhibited.

to be a special aim to illustrate the *beauty* of natural objects? Such a question could hardly arise with reference to order, for order is acknowledged to be Nature's character in chief. Yet, beauty is but a special form of order, having this peculiarity, that to minds suitably cultivated and disposed, it gives immediate pleasure through the eye. Nature can be fairly represented only in museums where due recognition and representation are conceded to phenomena associated with beauty."



TAXIDERMIC MONSTROSITIES.

THE BEAVER IN HERALDRY.

"SIC TRANSIT GLORIA MUNDI."*

[With apologies to Hood.]

I chanced, one day, by a woodland stream
That threaded its silvered way, a-gleam
With dancing sunlight's mirrored beam,
    Among its rocks and sedges;
And canopied under a Maple's shade,
That sentinelled the forest glade,
I dreamily watched the ripples that played
    Along the river's edges.

Idly dreaming and drinking in
The breath of the woods—sweet Nectar's kin—
Antidote for the fret and din
    That age the city craftsman,
When out on the river I heard the thrash
Of falling oars, with their rhythmic plash,
And the chanson's gay and joyous dash
    Trolled by some passing raftsman.

At least I thought 'twas this I heard,—
But I give you my purest rhyming word,
Although you may doubt and cry "Absurd!"
    On a pine-log there, a-straddle,
A Beaver sat with his household goods,
Like a chopper returning from the woods,
When work is done on the high spring-floods,
    Swinging his tail for a paddle!

Beating time with his paddle's sweep,
He chanted in tones both full and deep
A pitiful lay, 'twould make you weep
    To hear its doleful measure.
Seeing me beckoning on the bank,
He steered his raft through the sedges dank,
And beaching her there with a sounding clank,
    Demanded to know my pleasure.

"Oh whither away, my friend?" I said;
"Can you not earn your daily bread,
Here in your home, that your sails are spread
    In this truly emigrant fashion?"
He shook the wet from his jerkin buff,
And wiped away with his furry cuff
The tears that sprinkled his whiskers rough,
    And thus claimed my compassion:

* At a session of "The Society for Historical Studies" held in Montreal, April 1st, 1890, the chairman announced, on the authority of the "Herald's College," that the Beaver and the Maple-wreath had no part in the armorial bearings of Canada, and that their position as commonly depicted in the so-called "Dominion Coat of Arms" was unwarranted.

"I am leaving," he said, "my native land,
Though her name be proud and her record grand,
But ingratitude I never will stand—
Come death before dishonour!
My country has taken the fullest toll,
And levied her taxes on each round poll
Of the Beaver clan, till every soul
Hurls maledictions on her.

"To die for one's country is no disgrace:—
'Mong the names that honour's bead-roll grace
A grateful country awards a place
To the soldier who dies in action.
Do you wonder I shake my native damp
From my dripping coat, and quick decamp,
When I'm known to fame by a *postage-stamp*,
A *hat*, and a *party-faction*?

"When the Heralds quartered a coat-of-arms,
Of beasts and birds and fishes in swarms,
And I saw my hairy-coated charms
Its blazoned crest adorning,
Contented I was to die; my name,
I said, shall have undying fame!
But when the news to my castle came
My joy was turned to mourning."

As he ceased, a patter of drops came down
And showered us over from toe to crown;
It seemed as if her sorrow would drown,
In tears the Maple was weeping.
In a flood that drenched her shapely limbs
The grief-sapped tears that beauty dims,
Welled from her bird-eye's round red rims,
From out her wreathed locks peeping.

"'Tis sad, my brother, past all belief,"
She said when sorrow had found relief:
"My life fed yours, we're one in grief
For treatment unprecedented.
I had burned my way to my country's heart
I thought, I had taxed the painter's art
To limn my charms, and for my part
With this would fain be contented.

"I bore it when my tinted leaves
Were bound and pressed in treasured sheaves
To which the fond collector cleaves
As to some dear possession.
And Fame seemed very near to me
When thou and I were called to be
Twin-emblems in some jubilee
Or *St. Jean Baptiste* procession.

"My wreathéd chaplet Fame had bound
A grateful country's Arms around,—
I deemed my name would far resound
By Heralds' trumpet bruited.
Alas for fondest dreams of fame!—
I'd voyage with you and hide our shame—
To native land renounce all claim—
Were my ties less deeply rooted.

"But take, my brother, a pledge with thee;
This token of love wear thou for me
In thy lonely travels by land or sea,
Nor deem me thus soft-hearted
In wishing to be remembered still;
Though age may wither, and grief me kill,
May kindly fate keep thee from ill
When thou and I are parted!"

The Beaver kissed the leaflet that fell
In his outstretched paws, while the forest dell
Seemed wrapped about with a mystic spell
That breathed its sad insistence;—
I helped the Beaver his craft to launch;
And, straddled aboard its timber staunch—
In his mouth tight-gripped the Maple-branch—
He paddled away in the distance.

—*Samuel M. Baylis.*

POSTAGE STAMP ISSUED 1851.

CHAPTER XV.

THE RISE OF HERALDRY—TOTEMISM AND HERALDRY—HERALDIC SIGNIFICANCE OF THE BEAVER—CANADA'S INHERITANCE—OMISSION FROM THE PRESENT ARMORIAL BEARINGS—SUGGESTIONS FOR A COMPLETE NATIONAL COAT OF ARMS.

Standing before the monuments of ancient Egypt and contemplating the curious hieroglyphics by which its history was recorded, the mind is led to contrast the apparently complicated symbols formerly used to depict ideas, with the code now employed, which is so much more simple and more comprehensive. But the Egyptians did not rest content with their achievements in "picture-writing;" they progressed through the ideographic and phonetic stages, and two thousand years ago reached a system almost as complete as our own, indeed, with all our matter-of-fact ways we have not yet discarded the methods that were common in the days of Egypt's greatness, for even now do we not *sign* and *seal* important documents?

The "seals" in use at the present time are the outcome of the modern science of Heraldry, and a brief survey of the rise and development of this science will serve to show how very general, even now, is the use of the old art of "picture-writing."

When the princes of Europe joined in the Crusades or Holy Wars of the twelfth century—the age of purest chivalry—all persons of dignity or rank possessed elaborate armor and were skilled in the uses of the sword and dagger, lance, and battle-ax. In the *cap-a-pie* armor every possibility of identifying the wearer was precluded, and a necessity for some means of recognition arose. This led to the decoration of the shield, which hitherto had been plain, and the movement soon extended to the decoration of the helmet

with a distinguishing crest, while all the paraphernalia of pageantry, especially in tournaments, became a display of personal dignity. At first the distinction was for knightly fame or valor, but with the tournament, the purity of the decoration or emblazonment was abused, and brought about a debased and merely decorative heraldry, and the chivalric "bloody dagger" with its "*I mak sicer*," gave place to flowing plumes and other favors bestowed at the tournament by fair admirers. Many years later, on the establishment of the Herald's College, a system was promulgated whereby any family which could trace its connection with one which formerly bore armorial distinction, was permitted to continue the use, as a family *seal*, of the shield, crest, motto and supporters used by its sires. A method of recording, blending and even creating "coats of arms" has arisen, which, with the significance attached to each design, practically constitutes the hieroglyphics of genealogy.

The family or tribal "totem" of the North American Indians served much the same purpose, though its origin was very different. There is no doubt that totemism is much older than heraldry, and as the Indians employed the totem signs extensively in the "picture-writings" which formerly decorated their robes, they had probably more affinity to the old Egyptian hieroglyphics than to the modern heraldic emblem. As the origin and importance of Indian totems have been discussed in connection with beaver mythology and folklore, it only remains to show the heraldic significance of the beaver. It is interesting to note that the Indian word *wutohtimoin*, of which the Anglicised form is "totem," signifies the thing with which a person or place is associated.

In Clark's "Introduction to Heraldry" it is stated that "the Beaver, an amphibious animal, noted for its extraordinary industry and sagacity, is naturally very frequently met with in heraldry." In Burke's "General Armory," reference is made to the beaver, as a crest, granted to Hugh Beaver, Esq. It also is the crest of other families, a list of eighteen names is given in Fairbank's "Crests of Great Britain and Ireland." In a window of New Inn Hall, London, on a silver shield, a beaver (black) stands erect, devouring a fish.

Beverley or Before-leag—beaver place—the ancient Anglo-Saxon designation of the capital of the East Riding of Yorkshire, was situated in a country abounding with forest and rivers in the olden time; but the beavers were long ago transferred from their lodges to the arms of the borough. The seal of the corporation is: *Argent;* three waves, *Sable;* on a chief, *Sable*, a beaver statant regardant, *Argent.* The oldest armorial bearings of Beverley emblazon Saint John of Beverley, trampling on the ancient emblem of the town —the beaver. Biberach or Biberbach, in Germany, also carries the beaver in its armorial insignia.

(1623-1674) (1710-1718)

SEALS OF THE NEW NETHERLANDS.

In America the all-absorbing interest of the beaver trade made the adoption of the beaver in the heraldic bearings of corporations and governments a most appropriate choice. The first public seal of the province of New Netherlands is thus described; *Argent:* a beaver, proper; crest: a coronet. This was in use from 1623 to 1664 and probably even to the time of Governor Colve in 1673-4.

The warrant for the new seal authorized by King William and Queen Mary was brought over from England by Governor Sloughter, and bears date 31st May, 1690. It served as the model for all the great seals of New York, subsequently received from

England, and had on one side the effigies of the King and Queen, and two Indians kneeling, offering, as presents, the one a roll of wampum; the other, a beaver skin. Artistic license, however, improved the beaver off the seal, and it never was replaced.

The commercial value of the beaver passed from New Netherlands to Canada, which was soon acknowledged to be its chosen home. Canada lived on the beaver for many years and her very

COAT OF ARMS OF THE CITY OF MONTREAL.

existence at times depended on the forthcoming collection of beavers, yet when the time came to design a national coat-of-arms, these important associations were quite overlooked. The beaver is very dear to the heart of Canadians, and almost universal recognition is given to the commemoration of its national, its local, and its personal qualifications. In the Canadian Numismatic and Antiquarian Journal, volume I., 1872, Mr. Alfred Sandham communicated the

following,* concerning the medal of the Loyal and Patriotic Society of Upper Canada, 1812 :—

"One hundred pounds were voted to procure as many medals of silver as it could afford, and the following description was sent to England: 'Medal to be 2½ inches in diameter'—In a circle formed by a wreath of laurel, the words 'For Merit.' Legend: 'Presented by a grateful country.' On the obverse, 'a streight between two lakes, on the north side a beaver, (emblem of peaceful industry) the ancient armorial bearing of Canada. In the background, an English lion slumbering. On the south side of the streight, the American Eagle planeing in the air, as if checked from seizing the beaver by the presence of the lion.' Legend, 'Upper Canada Preserved.'"

Dr. Robert Bell, of the Geological Survey of Canada, says, "I have occasionally seen the Indian coat-of-arms representing the beaver, rudely carved or scribbled on flattened sticks, especially near lake Huron, about 30 years ago, when their totems were more visible than now. They were principally on 'head-sticks' or 'death-sticks' at graves, or by chance on a scrap of wood or birch-bark at an old camp."

According to "Dame Heraldry," General Guy Carleton, in recognition of his successful efforts to withstand the American invasion of 1760, received the following honors: "He became Lord Dorchester, and after returning to England, was elected a Knight of the Order of the Bath; and the beaver, which abounds in Canada, was given him as his supporters, one wearing a mural crown about his neck, and the other a naval coronet, in honor of his successful endurance of the seige at Quebec, and his victories on Lake Champlain."

J. Redpath Dougall, of the Montreal "Witness," in 1890, wrote: "I am interesting myself in procuring a simplification of the bear-

* Copied almost *verbatim* from the "Report of the Loyal and Patriotic Society," published in Montreal, 1817.

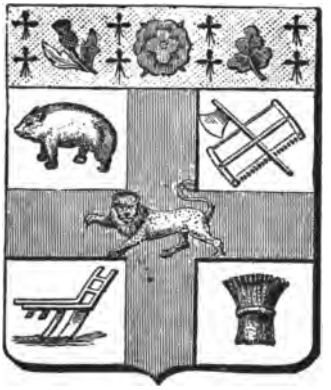
ings of Canada or at least of her flag. The beaver is a well established emblem and one equally appropriate to the country in the fur trading era, to the lumbering period and to the age of industry; the animal having been everywhere regarded as a model of industry. It has also the merit of universally having been in use as an emblem of Canada."

Sir William Dawson, in a lecture delivered in 1863, on "The Duties of Educated Young Men in British America," said, "Canada has two emblems—the beaver and the maple. The beaver in his sagacity, his industry, his ingenuity, and his perseverance, is a most respectable animal; a much better emblem for our country than the rapacious eagle or even the lordly lion; but he is also a type of unvarying instincts and Old World traditions. He does not improve, and becomes extinct rather than change his ways. Some of our artists have the bad taste to represent the beaver as perched on the maple bough, a most unpleasant position for the poor animal, and suggestive of the thought, that he is in the act of gnawing through the trunk of our national tree (the maple). Perhaps some more venturous designer may some day reverse the position, and represent the maple branch as fashioned into a club, wherewith to knock the beaver on the head."

In answer to a special enquiry made at the office of the Dominion Archivist, Mr. Douglas Brymner writes: "I can find no reference to the Beaver in the Arms of Canada, nor is it mentioned in the descriptions of the Great Seal. The first, so far as I can trace, to make use of the Beaver as a crest, was Sir William Alexander, raised to the peerage by the title of Viscount Sterling on the 4th of September, 1630. The original intention was to grant him the right to the Arms of New Scotland (Nova Scotia) quartered with his own, whilst the new blazon indicated his new title of Lord of Canada, the new titles being only acquired in June, 1633. The crest is thus described: 'For his crest on a wreath *argent, sable:* a beaver proper.'"

As almost every artist's idea of the way in which the beaver was

incorporated in the Arms of Canada differed, it was thought that the opinion of the Herald's College on this point would settle it satisfactorily, but great surprise followed the announcement that neither beaver, crown nor wreath pertained to the Arms of the Dominion of Canada. In earlier times the beaver had been adopted in the designs for Canadian currency and postage stamps, and the accompanying shield with its very curious heraldic beaver is supposed to have been at one time the Arms of Canada. "*Argt.* quartered by cross, *Gules*, having lion passant, gardt, in centre, *Or*; First quarter, a beaver couchant; second, saw and hatchet crossed; third plough;



EARLY ARMS OF CANADA (UNAUTHENTICATED).

fourth, wheatsheaf; all of the third, in a chief of the same, a wreath between two leaves and eight stars, *Vert.*"

In the first number of the "Dominion Illustrated," published July 7th, 1888, notice was taken of the fact that Canadian Confederation had just completed its twenty-first anniversary, and the occasion was chosen to suggest a design for a permanent coat-of-arms. "There is first the shield divided into four quarters, representing the four races whose bone and muscle, whose brains and toil, whose pluck and money have made this country what it is, and laid the foundation of that mightier structure which it is going to become in

the not distant future. These races are the English, French, Scotch and Irish. Each is represented by its token of national flower—the rose, lily, thistle and shamrock. The tutelary power of the whole is represented by the Imperial Crown, at the summit, and the peculiar and special Canadian character is denoted by a beaver over the shield and around it a broad wreath of the beautiful Maple leaf. The legend underneath is simple while it expresses the fundamental principle of our constitution, that we thrive by union, though severed by race, creed and tongue. *Diversæ conjunctæ crescimus.*"

Many other suggestions have been made, and each has its merits and demerits, but surely any design incorporating the beaver will have this one improvement. Canada's present arms, with all their complications are very expressive and much admired, therefore, suggestions should be in the form of additions not reductions. There yet remains the choice of a crest and national motto, besides which, supporters to the shield might be added. As the day may not be far distant when the voice of the people will demand that these omissions should be repaired, it might be timely to offer here a design. For a crest, the Imperial Crown, symbol of membership in the great Imperial Federation; Motto "*Le Canada d'abord,*" a sentiment worthy of our magnificent future; supporters, the Canadian Beaver resting on Maple boughs, embodying a recognition of our traditions and early history.

May some Hiawatha arise to proclaim our duty and see that in the modern hieroglyphics of heraldry is commemorated the departed greatness of our national totem—the Beaver.

"In those days said Hiawatha,
'Lo! how all things fade and perish!
From the memory of the old men
Fade away the great traditions,
. . . . . .
'Great men die and are forgotten,
Wise men speak; their words of wisdom
Perish in the ears that hear them,
Do not reach the generations
That, as yet unborn, are waiting

SUGGÉSTION FOR A COMPLETE COAT OF ARMS
FOR THE DOMINION OF CANADA.

In the great mysterious darkness
Of the speechless days that shall be!
'On the grave-posts of our fathers
Are no signs, no figures painted;
Who are in those graves we know not,
Only know they are our fathers.
Of what kith they are and kindred,
From what old, ancestral Totem,
Be it Eagle, Bear, or Beaver,
They descended, this we know not,
Only know they are our fathers.
'Face to face we speak together,
But we cannot speak when absent,
Cannot send our voices from us
To the friends that dwell afar off;
Cannot send a secret message,
But the bearer learns our secret,
May pervert it, may betray it,
May reveal it unto others.'
Thus said Hiawatha, walking
In the solitary forest,
Pondering, musing in the forest,
On the welfare of his people.
From his pouch he took his colours,
Took his paints of different colors,
On the smooth bark of the birch-tree
Painted many shapes and figures,

. . . . . .

And each figure had a meaning,
Each some word or thought suggested.
Gitche Manito the Mighty,
He the Master of Life, was painted
As an egg, with points projecting
To the four winds of the heavens.

. . . . . .

Mitche Manito the Mighty,
He the dreadful Spirit of Evil,
As a serpent was depicted,
As Kenabeek, the great serpent.

. . . . . .

Life and Death he drew as circles,
Life was white, but death was darkened.

. . . . . .

For the earth he drew a straight line,
For the sky a bow above it;
White the space between for day-time;
Filled with little stars for night-time;
On the left a point for sunrise,
On the right a point for sunset,
On the top a point for noon-tide,
And for rain and cloudy weather
Waving lines descending from it.

. . . . . .

All these things did Hiawatha
Show unto his wondering people,
And interpreted their meaning,
And he said: 'Behold, your grave-posts
Have no mark, no sign, nor symbol.
Go and paint them all with figures,
Each one with its household symbol,
With its own ancestral Totem;
So tha those who follow after
May distinguish them and know them.'
And they painted on the grave-posts
Of the graves yet unforgotten,
Each his own ancestral Totem,
Each the symbol of his household;
Figures of the Bear and Reindeer,
Of the Turtle, Crane, and Beaver,
Each inverted as a token
That the owner was departed,
That the chief who bore the symbol
Lay beneath in dust and ashes."

APPENDICES.

APPENDIX—A.

(PHOTO-COPIES FROM ORIGINAL DOCUMENTS.)

ARREST
DU CONSEIL D'ESTAT
DU ROY,

A PARIS,
DE L'IMPRIMERIE ROYALE.

M. DCCXXI.

ARREST
DU CONSEIL D'ESTAT
DU ROY,

Portant Reſtabliſſement du Privilege Excluſif de la Vente du Caſtor, en faveur de la Compagnie des Indes.

Du 30. May 1721.

Extrait des Regiſtres du Conſeil d'Eſtat.

LE ROY s'eſtant fait repreſenter l'Arreſt de ſon Conſeil, rendu ſur la Requeſte des Directeurs de la Compagnie des Indes du 16. May 1720. par lequel Sa Majeſté a ordonné que le Commerce du Caſtor demeureroit libre, Et a converti le Privilege Excluſif de la vente dudit Caſtor, accordé à ladite Compagnie

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par Lettres Patentes du mois d'Aouſt 1717. en un Droit de neuf ſols par livre de Caſtor gras, & de ſix ſols par livre de Caſtor ſec, qui doit eſtre payé à l'Entrée du Royaume au profit de ladite Compagnie pendant tout le temps de ſon Privilege; Et Sa Majeſté ayant reconnu que la liberté du Commerce dudit Caſtor eſt également contraire au bien du Commerce general du Royaume, à celuy des habitans de la Province du Canada & Nouvelle France, & aux intereſts de la Compagnie des Indes; Oüy le Rapport du S.r Le Pelletier de la Houſſaye Conſeiller d'Eſtat ordinaire & au Conſeil de Regence pour les Finances, Controlleur General des Finances. SA MAJESTÉ ESTANT EN SON CONSEIL, de l'avis de Monſieur le Duc d'Orleans Regent, a Revoqué & revoque la liberté du Commerce du Caſtor accordé par l'Arreſt de ſon Conſeil du 16. May 1720. En conſequence Ordonne Sa Majeſté que la Compagnie des Indes joüira du Privilege Excluſif du Commerce du Caſtor, conformement aux Lettres Patentes du mois d'Aoûſt 1717. portant Eſtabliſſement de la Compagnie d'Occident, nommée depuis *Compagnie des Indes*, & à l'Arreſt du Conſeil de Sa Majeſté du 18. Juillet 1718. Sa Majeſté permet aux Negocians & autres particuliers de ſon Royaume, qui peuvent avoir acheté du Caſtor en conſequence de la liberté de ce Commerce, accordée par l'Arreſt de ſon Conſeil du 16. May 1720. de le vendre & debiter aux Chapeliers fabriquans avant le premier Decembre prochain pour tout delay, paſſé lequel temps, Ordonne Sa Majeſté que ceux à qui il en reſtera ſeront tenus de le declarer & remettre à la Compagnie des Indes dans les 15. premiers jours dudit mois de Decembre, laquelle Compagnie le payera au même

prix qu'elle l'aura payé en Canada pendant la preſente année : Deffend Sa Majeſté tres expreſſement à tous ſes Sujets de quelque qualité & condition qu'ils ſoient, autres que les Chapeliers fabriquans, de garder aucun Caſtor dans le Royaume aprés ledit jour premier Decembre de la preſente année, à peine de confiſcation du Caſtor au profit de la Compagnie & de Trois mille livres d'amende, dont moitié applicable à la Compagnie, & l'autre moitié au denonciateur. FAIT au Conſeil d'Eſtat du Roy, Sa Majeſté y eſtant, tenu à Paris le trentiéme jour de May mil ſept cens vingt-un. *Signé* PHELYPEAUX.

A PARIS,
DE L'IMPRIMERIE ROYALE,
M. DCCXXI.

ARREST
DU CONSEIL D'ESTAT
DU ROY,

Qui ſurſeoit l'Execution de celuy du 30. May 1721. qui rétablit, en faveur de la Compagnie des Indes, le Privilege Excluſif de la vente du Caſtor.

Du 20. Juillet 1721.

Extrait des Regiſtres du Conſeil d'Eſtat.

LE ROY ayant jugé à propos par les motifs expliquez dans l'Arreſt de ſon Conſeil du 30. May dernier, de reſtablir le Privilege Excluſif de la vente du Caſtor en faveur de la Compagnie des Indes; Et Sa Maieſté eſtant informée des repreſentations qui ont eſté

faites par les Marchands & Negocians de la Rochelle; Et par pluſieurs des principaux habitans du Canada qui ſe ſont trouvez dans ladite Ville pour leurs affaires; Leſdites repreſentations tendantes à ce qu'il pluſt à Sa Majeſté revoquer ledit Arreſt comme contraire au Commerce du Royaume en general, & à l'intereſt de ladite Colonie. Veû par Sa Majeſté la rêponſe faite par la Compagnie des Indes auſdites repreſentations, qui luy ont eſté communiquées, Enſemble l'avis des Deputez au Conſeil de Commerce; Oüy le Rapport du S.r Le Pelletier de la Houſſaye Conſeiller d'Eſtat ordinaire & au Conſeil de Regence pour les Finances, Controlleur General des Finances. LE ROY ESTANT EN SON CONSEIL, de l'avis de Monſieur le Duc d'Orleans Regent, a Ordonné & ordonne qu'il ſera ſurſis à l'Execution dudit Arreſt du 30. May dernier juſqu'à ce que par Sa Majeſté il en ait eſté autrement ordonné. FAIT au Conſeil d'Eſtat du Roy, Sa Majeſté y eſtant, tenu à Paris le vingtiéme jour de Juillet mil ſept cens vingt-un. *Signé* PHELYPEAUX.

ARREST
DU CONSEIL D'ESTAT
DU ROY,

Concernant le commerce & la qualité du Caſtor qui eſt reçû dans les Bureaux de la Compagnie des Indes en Canada.

Du 30. Mars 1726.

Extrait des Regiſtres du Conſeil d'Eſtat.

LE ROY eſtant informé que le Caſtor qui eſt reçû aux Bureaux de la Compagnie des Indes en Canada, tant gras, demi-gras, que ſec, eſt pour la plus grande partie défectueux, & néantmoins payé au même prix du bon; le Caſtor qui y eſt livré pour gras, ayant eſté engraiſſé avec des huiles ou de la

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graiſſe, au lieu qu'il ne devroit avoir cette qualité de gras, qu'après avoir eſté porté long-temps par les Sauvages auſquels il ſert d'habillement : il en eſt de même du Caſtor demi-gras, lequel ne doit eſtre reçû pour Caſtor gras, en execution de l'Arreſt du 11. Juillet 1718. qu'autant qu'il ſera de bonne qualité : la plus grande partie du Caſtor ſec eſt trop chargé de cuir & même de chair, de ſorte que les Chapeliers qui ſe trouvent dans la neceſſité de prendre ces Caſtors tels qu'ils ſont au Bureau de ladite Compagnie à Paris, ſe plaignent qu'ils y trouvent une perte conſiderable, particulierement ſur le Caſtor engraiſſé, lequel devenant ſec en le fabriquant, par la ſeparation qui ſe fait de la graiſſe & huile dont il a eſté frotté, d'avec le poil, le Chapelier qui l'a payé comme gras, perd non ſeulement la difference du prix du Caſtor gras, au ſec, mais encore le poids de la graiſſe qui ſort de ce Caſtor falſifié, & qu'il luy eſt impoſſible de faire de bons chapeaux avec d'auſſi mauvaiſes matieres, ce qui fera tomber les Manufactures; à quoy eſtant neceſſaire de pourvoir. Oüy le rapport du Sieur Dodun Conſeiller ordinaire au Conſeil Royal, Controlleur general des Finances, SA MAJESTÉ ESTANT EN SON CONSEIL, a ordonné & ordonne ce qui ſuit.

ARTICLE PREMIER.

LES Robes de Caſtor gras, & les Peaux de Caſtor ſec, de bonne qualité, qui ſeront apportées aux Bureaux de la Compagnie des Indes en Canada, continuëront d'y eſtre reçûës & payées, ſçavoir la livre poids de marc de Caſtor gras, à raiſon de Quatre francs, & la livre de Caſtor ſec, à raiſon de Quarante ſols.

II.

DEFFEND Sa Majeſté à la Compagnie des Indes, de recevoir aucune Robe de Caſtor engraiſſé ni falſifié, pour Caſtor gras : luy deffend, à commencer du premier Janvier de l'année prochaine, de recevoir les Robes de Caſtor demi-gras pour Caſtor gras.

III.

VEUT Sa Majeſté, que conformément à l'Article III. de l'Arreſt de ſon Conſeil du 11. Juillet 1718. il ne ſoit reçû pour Caſtor ſec, que celuy qui ſera d'hyver & de beau poil.

IV.

PENDANT la preſente année ſeulement, les Robes de Caſtor demi-gras, de Caſtor veule & de Caſtor engraiſſé, ſeront payées auſdits Bureaux, ſçavoir le demi-gras de bonne qualité, ſur le pied de Soixante ſols la livre; le Veule, auſſi de bonne qualité, à raiſon de Cinquante ſols la livre; Et le Caſtor engraiſſé, au même prix que le Caſtor ſec.

V.

A commencer de l'année prochaine, les eſpeces de Caſtor mentionnées en l'Article precedent, ne ſeront plus reçûës & payées que ſur le pied cy-après, ſçavoir les Robes de Caſtor demi-gras & de Caſtor veule, l'une dans l'autre, de bonne qualité, à raiſon de Cinquante ſols la livre, pourvû qu'il n'y ait point eſté mis de graiſſe ni huile pour en augmenter le poids; Et les Robes de Caſtor engraiſſé, ſur le pied de Trente ſols la livre.

VI.

PERMET à ladite Compagnie, de recevoir les autres eſpeces de Caſtor rebutées du gras & du ſec, dont on pourra faire uſage, à condition qu'il en ſera compoſé des balots ſeparez, & qu'il n'en ſera fait aucun meſlange avec le Caſtor gras & ſec; leſquels Caſtors de rebut ſeront payez par les Commis de la Compagnie, aux prix qui ſeront reglez par l'Intendant du Canada, ſur l'avis des Experts qu'il aura nommez pour en faire l'examen.

VII.

TOUTES les eſpeces de Caſtor continuëront d'eſtre payées à ceux qui les livreront aux Bureaux de ladite Compagnie, en Lettres de change ſuivant l'uſage, qui ſeront tirées par ſon Agent à Quebec, ſur le Caiſſier de ladite Compagnie à Paris,

payables, ſçavoir pour la valeur des Caſtors gras, demi-gras & veule, moitié en Janvier & moitié en Fevrier de l'année ſuivante; & pour celle du Caſtor ſec & des autres eſpeces de Caſtor rebutées du gras & du ſec, moitié en Mars & l'autre moitié en Avril auſſi de l'année ſuivante; leſquelles Lettres continuëront d'eſtre acceptées à leur preſentation, & regulierement payées à leur écheance.

VIII.

VEUT Sa Majeſté, que les Arreſts de ſon Conſeil du 11. Juillet 1718. & 4. Juin 1719. concernant le commerce du Caſtor, ſoient executez en ce qu'il n'y eſt derogé par le preſent: Et enjoint au Sieur Intendant de la nouvelle France, de tenir la main à l'execution du preſent Arreſt, qui ſera enregiſtré au Conſeil ſuperieur de Quebec, lû, publié & affiché par tout où beſoin ſera. FAIT au Conſeil d'Eſtat du Roy, Sa Majeſté y eſtant, tenu à Verſailles le trentiéme jour de Mars mil ſept cens vingt-ſix. *Signé* PHELYPEAUX.

A PARIS,
DE L'IMPRIMERIE ROYALE.

M. DCCXXVI.

APPENDIX—B.

(EXTRACT FROM)

A

JOURNEY

FROM

PRINCE OF WALES'S FORT,

IN HUDSON'S BAY,

TO

THE NORTHERN OCEAN.

UNDERTAKEN

BY ORDER OF THE HUDSON'S BAY COMPANY.

FOR THE DISCOVERY OF

COPPER MINES, A NORTH WEST PASSAGE, &c.

In the Years 1769, 1770, 1771, & 1772.

By SAMUEL HEARNE.

SAMUEL HEARNE'S ACCOUNT OF THE BEAVER.

The beaver being so plentiful, the attention of my companions was chiefly engaged on them, as they not only furnished delicious food, but their skins proved a valuable acquisition, being a principal article of trade, as well as a serviceable one for clothing, &c.

The situation of the beaver-houses is various. Where the beavers are numerous they are found to inhabit lakes, ponds, and rivers, as well as those narrow creeks which connect the numerous lakes with which this country abounds; but the two latter are generally chosen by them when the depth of water and other circumstances are suitable, as they have then the advantage of a current to convey wood and other necessaries to their habitations, and because, in general, they are more difficult to be taken, than those that are built in standing water.

There is no one particular part of a lake, pond, river, or creek, of which the beavers make choice for building their houses on, in preference to another; for they sometimes build on points, sometimes in the hollow of a bay, and often on small islands; they always chuse, however, those parts that have such a depth of water as will resist the frost in Winter, and prevent it from freezing to the bottom.

The beaver that build their houses in small rivers or creeks, in which the water is liable to be drained off when the back supplies are dried up by the frost, are wonderfully taught by instinct to provide against that evil, by making a dam quite across the river, at a convenient distance from their houses. This I look upon as the most curious piece of workmanship that is performed by the beaver; not so much for the neatness of the work, as for its strength and

real service; and at the same time it discovers such a degree of sagacity and foresight in the animal, of approaching evils, as is little inferior to that of the human species, and is certainly peculiar to those animals.

The beaver-dams differ in shape according to the nature of the place in which they are built. If the water in the river or creek have but little motion, the dam is almost straight; but when the current is more rapid, it is always made with a considerable curve, convex towards the stream. The materials made use of in those dams are drift-wood, green willows, birch and poplars, if they can be got; also mud and stones, intermixed in such a manner as must evidently contribute to the strength of the dam; but in these dams there is no other order or method observed, except that of the work being carried on with a regular sweep, and all the parts being made of equal strength.

In places which have been long frequented by beaver undisturbed, their dams, by frequent repairing, become a solid bank, capable of resisting a great force both of water and ice; and as the willow, poplar, and birch generally take root and shoot up, they by degrees form a kind of regular-planted hedge, which I have seen in some places so tall, that birds have built their nests among the branches.

Though the beaver which build their houses in lakes and other standing waters, may enjoy a sufficient quantity of their favourite element without the assistance of a dam, the trouble of getting wood and other necessaries to their habitations without the help of a current, must in some measure counterbalance the other advantages which are reaped from such a situation; for it must be observed, that the beaver which build in rivers and creeks, always cut their wood above their houses, so that the current, with little trouble, conveys it to the place required.

The beaver-houses are built of the same materials as their dams, and are always proportioned in size to the number of inhabit-

ants, which seldom exceed four old, and six or eight young ones; though, by chance, I have seen above double that number.

These houses, though not altogether unworthy of admiration, fall very short of the general description given of them; for instead of order or regulation being observed in rearing them, they are of a much ruder structure than their dams.

Those who have undertaken to describe the inside of beaver-houses, as having several apartments appropriated to various uses; such as eating, sleeping, store-houses for provisions, and one for their natural occasions, &c., must have been very little acquainted with the subject; or, which is still worse, guilty of attempting to impose on the credulous, by representing the greatest falsehoods as real facts. Many years constant residence among the Indians, during which I had an opportunity of seeing several hundreds of those houses, has enabled me to affirm that every thing of the kind is entirely void of truth; for, notwithstanding the sagacity of those animals, it has never been observed that they aim at any other conveniences in their houses, than to have a dry place to lie on; and there they usually eat their victuals, which they occasionally take out of the water.

It frequently happens, that some of the large houses are found to have one or more partitions, if they deserve that appellation; but that is no more than a part of the main building, left by the sagacity of the beaver to support the roof. On such occasions it is common for those different apartments, as some are pleased to call them, to have no communication with each other but by water; so that in fact they may be called double or treble houses, rather than different apartments of the same house. I have seen a large beaver-house built in a small island, that had near a dozen apartments under one roof: and, two or three of these only excepted, none of them had any communication with each other but by water. As there were beaver enough to inhabit each apartment, it is more than probable that each family knew its own, and always entered at their own door, without having any further connection with their neighbours

than a friendly intercourse; and to join their united labours in erecting their separate habitations, and building their dams where required. It is difficult to say whether their interest on other occasions was anyways reciprocal. The Indians of my party killed twelve old beaver, and twenty-five young and half-grown ones out of the house above mentioned; and on examination found that several had escaped their vigilance, and could not be taken but at the expence of more trouble that would be sufficient to take double the number in a less difficult situation.*

Travellers who assert that the beaver have two doors to their houses, one on the land-side, and the other next the water, seem to be less acquainted with those animals than others who assign them an elegant suite of apartments. Such a proceeding would be quite contrary to their manner of life, and at the same time would render their houses of no use, either to protect them from their enemies, or guard them against the extreme cold in Winter.

The quiquehatches, or wolvereens, are great enemies to the beaver; and if there were a passage into their houses on the land-side, would not leave one of them alive wherever they came.

I cannot refrain from smiling, when I read the accounts of different Authors who have written on the œconomy of those animals, as there seems to be a contest between them, who shall most exceed in fiction. But the Compiler of the Wonders of Nature and Art seems, in my opinion, to have succeeded best in this respect; as he has not only collected all the fictions into which other writers on the subject have run, but has so greatly improved on them, that little remains to be added to his account of the beaver, beside a vocabulary of their language, a code of their laws, and a sketch of their religion, to make it the most complete natural history of that animal which can possibly be offered to the public.

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* The difficulty here alluded to, was the numberless vaults the beaver had in the sides of the pond, and the immense thickness of the house in some parts,

There cannot be a greater imposition, or indeed a grosser insult, on common understanding, than the wish to make us believe the stories of some of the works ascribed to the beaver; and though it is not to be supposed that the compiler of a general work can be intimately acquainted with every subject of which it may be necessary to treat, yet a very moderate share of understanding is surely sufficient to guard him against giving credit to such marvellous tales, however smoothly they may be told, or however boldly they may be asserted, by the romancing traveller.

To deny that the beaver is possessed of a very considerable degree of sagacity, would be as absurd in me, as it is in those Authors who think they cannot allow them too much. I shall willingly grant them their full share; but it is impossible for any one to conceive how, or by what means, a beaver, whose full height when standing erect does not exceed two feet and a half, or three feet at most, and whose fore-paws are not much larger than a half-crown piece, can "drive stakes as thick as a man's leg into the ground "three or four feet deep." Their "wattling those stakes with "twigs," is equally absurd; and their "plastering the inside of "their houses with a composition of mud and straw, and swimming "with mud and stones on their tails," are still more incredible. The form and size of the animal, notwithstanding all its sagacity, will not admit of its performing such feats; and it would be as impossible for a beaver to use its tail as a trowel, except on the surface of the ground on which it walks, as it would have been for Sir James Thornhill to have painted the dome of St. Paul's cathedral without the assistance of scaffolding. The joints of their tail will not admit of their turning it over their backs on any occasion whatever, as it has a natural inclination to bend downwards; and it is not without some considerable exertion that they can keep it from trailing on the ground. This being the case, they cannot sit erect like a squirrel, which is their common posture: particularly when eating, or when they are cleaning themselves, as a cat or squirrel does, without having their tails bent forward between their legs; and which may not improperly be called their trencher.

So far are the beaver from driving stakes into the ground when building their houses, that they lay most of the wood crosswise, and nearly horizontal, and without any other order than that of leaving a hollow or cavity in the middle; when any unnecessary branches project inward, they cut them off with their teeth, and throw them in among the rest, to prevent the mud from falling through the roof. It is a mistaken notion, that the wood-work is first completed and then plaistered; for the whole of their houses, as well as their dams, are from the foundation one mass of wood and mud, mixed with stones, if they can be procured. The mud is always taken from the edge of the bank, or the bottom of the creek or pond, near the door of the house; and though their fore-paws are so small, yet it is held so close up between them, under their throat, that they carry both mud and stones; while they always drag the wood with their teeth.

All their work is executed in the night; and they are so expeditious in completing it, that in the course of one night I have known them to have collected as much mud at their houses as to have amounted to some thousands of their little handfuls; and when any mixture of grass or straw has appeared in it, it has been, most assuredly, mere chance, owing to the nature of the ground from which they had taken it. As to their designedly making a composition for that purpose, it is entirely void of truth.

It is a great piece of policy in those animals, to cover, or plaister, as it is usually called, the outside of their houses every fall with fresh mud, and as late as possible in the Autumn, even when the frost becomes pretty severe; as by this means it soon freezes as hard as a stone, and prevents their common enemy, the quiquehatch, from disturbing them during the Winter. And as they are frequently seen to walk over their work, and sometimes to give a flap with their tail, particularly when plunging into the water, this has, without doubt, given rise to the vulgar opinion that they use their tails as a trowel, with which they plaister their houses; whereas that flapping of the tail is no more than a custom, which they always preserve, even when they become tame and domestic, and more particularly so when they are startled.

Their food chiefly consists of a large root, something resembling a cabbage stalk, which grows at the bottom of the lakes and rivers. They eat also the bark of trees, particularly that of the poplar, birch, aud willow; but the ice preventing them from getting to the land in Winter, they have not any barks to feed upon during that season, except that of such sticks as they cut down in Summer, and throw into the water opposite the doors of their houses, and as they generally eat a great deal, the roots above mentioned constitute a chief part of their food during the Winter. In summer they vary their diet, by eating various kinds of herbage, and such berries as grow near their haunts during that season.

When the ice breaks up in the spring, the beaver always leave their houses, and rove about the whole Summer, probably in search of a more commodious situation; but in case of not succeeding in their endeavours, they return again to their old habitations a little before the fall of the leaf, and lay in their Winter stock of woods. They seldom begin to repair the houses till the frost commences, and never finish the outer coat till the cold is pretty severe, as hath been already mentioned.

When they shift their habitations, or when the increase of their number renders it necessary to make some addition to their houses, or to erect new ones, they begin felling the wood for these purposes early in the Summer, but seldom begin to build till the middle or latter end of August, and never complete their houses till the cold weather be set in.

Notwithstanding what has been so repeatedly reported of those animals assembling in great bodies, and jointly erecting large towns, cities, and commonwealths, as they have sometimes been called, I am confident, from many circumstances, that even where the greatest numbers of beaver are situated in the neighbourhood of each other, their labours are not carried on jointly in the erection of their different habitations, nor have they any reciprocal interest, except it be such as live immediately under the same roof; and then it extends no farther than to build or keep a dam which is common to several

houses. In such cases it is natural to think that every one who receives benefit from such dams, should assist in erecting it, being sensible of its utility to all.

Persons who attempt to take beaver in Winter should be thoroughly acquainted with their manner of life, otherwise they will have endless trouble to effect their purpose, and probably without success in the end; because they have always a number of holes in the banks, which serve them as places of retreat when any injury is offered to their houses; and in general it is in those holes that they are taken.

When the beaver which are situated in a small river or creek are to be taken, the Indians sometimes find it necessary to stake the river across, to prevent them from passing; after which, they endeavour to find out all their holes or places of retreat in the banks. This requires much practice and experience to accomplish, and is performed in the following manner: Every man being furnished with an ice-chisel, lashes it to the end of a small staff about four or five feet long; he then walks along the edge of the banks, and keeps knocking his chisel against the ice. Those who are well acquainted with that kind of work well know by the sound of the ice when they are opposite to any of the beaver' holes or vaults. As soon as they suspect any, they cut a hole through the ice big enough to admit an old beaver; and in this manner proceed till they have found out all their places of retreat, or at least as many of them as possible. While the principal men are thus employed, some of the understrappers, and the women, are busy in breaking open the house, which at times is no easy task; for I have frequently known these houses to be five and six feet thick; and one in particular, was more than eight feet thick on the crown. When the beaver find that their habitations are invaded, they fly to their holes in the banks for shelter; and on being perceived by the Indians, which is easily done, by attending to the motion of the water, they block up the entrance with stakes of wood, and then haul the beaver out of its hole, either by hand, if they can reach it, or with a large hook made for that purpose, which is fastened to the end of a long stick.

In this kind of hunting, every man has the sole right to all the beaver caught by him in the holes or vaults; and as this is a constant rule, each person takes care to mark such as he discovers, by sticking up the branch of a tree, or some other distinguishing post, by which he may know them. All that are caught in the house also are the property of the person who finds it.

The same regulations are observed, and the same process used in taking beaver that are found in lakes and other standing waters, except it be that of staking the lake across, which would be both unnecessary and impossible. Taking beaver houses in these situations is generally attended with less trouble and more success than in the former.

The beaver is an animal which cannot keep under water long at a time; so that when their houses are broken open, and all their places of retreat discovered, they have but one choice left, as it may be called, either to be taken in their houses or their vaults: in general they prefer the latter; for where there is one beaver caught in the house, many thousands are taken in their vaults in the banks. Sometimes they are caught in nets, and in the Summer very frequently in traps. In winter they are very fat and delicious; but the trouble of rearing their young, the thinness of their hair, and their constantly roving from place to place, with the trouble they have in providing against the approach of Winter, generally keep them very poor during the summer season, at which time their flesh is but indifferent eating, and their skins of so little value, that the Indians generally singe them, even to the amount of many thousands in one Summer. They have from two to five young, at a time. Mr. Dobbs, in his Account of Hudson's Bay, enumerates no less than eight different kinds of beaver; but it must be understood that they are all of one kind and species; his distinctions arise wholly from the different seasons of the year in which they are killed, and the different uses to which their skins are applied which is the sole reason that they vary so much in value.

Joseph Lefranc, or Mr. Dobbs for him, says, that a good hunter

can kill six hundred beaver in one season, and can only carry one hundred to market. If that was really the case in Lefranc's time, the canoes must have been much smaller than they are at present; for it is well known that the generality of the canoes which have visited the Company's Factories for the last forty or fifty years, are capable of carrying three hundred beaver-skins with great ease, exclusive of the Indians luggage, provisions, &c.

If ever a particular Indian killed six hundred beaver in one Winter, (which is rather to be doubted,) it is more than probable that many in his company did not kill twenty, and perhaps some none at all, so that by distributing them among those who had bad success, and others who had no abilities for that kind of hunting, there would be no necessity of leaving them to rot, or for singing them in the fire, as related by the Author. During my residence among the Indians I have known some individuals kill more beaver, and other heavy furs, in the course of a Winter, than their wives could manage; but the overplus was never wantonly destroyed, but always given to their relations, or to those who had been less successful; so that the whole of the great hunters labours were always brought to the Factory. It is indeed too frequently a custom among the Southern Indians to singe many otters, as well as beaver; but this is seldom done except in Summer, when their skins are of so little value as to be scarcely worth the duty; on which account it has always been thought impolitic to encourage the natives to kill such valuable animals at a time when their skins are not in season.

The white beaver, mentioned by Lefranc, are so rare, that instead of being "blown upon by the Company's Factors," as he asserts, I rather doubt whether one-tenth of them ever saw one during the time of their residence in this country. In the course of twenty years experience in the countries about Hudson's Bay, though I travelled six hundred miles to the West of the sea-coast, I never saw but one white beaver-skin, and it had many reddish and brown hairs along the ridge of the back, and the sides and belly were of a glossy silvery white. It was deemed by the Indians a great curiosity; and I offered three times the usual price for a few of them, if they could

be got; but in the course of ten years that I remained there afterwards, I could not procure another; which is a convincing proof there is no such thing as a breed of that kind, and that a variation from the usual color is very rare.

Black beaver, and that of a beautiful gloss, are not uncommon: perhaps they are more plentiful at Churchill than at any other Factory in the Bay; but it is rare to get more than twelve or fifteen of their skins in the course of one year's trade.

Lefranc, as an Indian, must have known better than to have informed Mr. Dobbs that the beaver have from ten to fifteen young at a time; or if he did, he must have deceived him wilfully; for the Indians, by killing them in all stages of gestation, have abundant opportunities for ascertaining the usual number of their offspring. I have seen some hundreds of them killed at the seasons favourable for those observations, and never could discover more than six young in one female, and that only in two instances; for the usual number, as I have before observed, is from two to five.

Besides this unerring method of ascertaining the real number of young which any animal has at a time, there is another rule to go by, with respect to the beaver, which experience has proved to the Indians never to vary or deceive them, that is by dissection; for on examining the womb of a beaver, even at a time when not with young, there is always found a hardish round knob for every young she had at the last litter. This is a circumstance I have been particularly careful to examine, and can affirm it to be true, from real experience.

Most of the accounts, nay I may say all the accounts now extant, respecting the beaver, are taken from the authority of the French who have resided in Canada; but those accounts differ so much from the real state and œconomy of all the beaver to the North of that place, as to leave great room to suspect the truth of them altogether. In the first place, the assertion that they have two doors to their houses, one on the land side and the other next the water, is,

as I have before observed, quite contrary to fact and common sense, as it would render their houses of no use to them, either as places of shelter from the inclemency of the extreme cold in Winter, or as a retreat from their common enemy the quiquehatch. The only thing that could have made M. Du Pratz, and other French writers, conjecture that such a thing did exist, must have been from having seen some old beaver houses which had been taken by the Indians; for they are always obliged to make a hole in one side of the house before they can drive them out; and it is more than probable that in so mild a climate as Canada, the Indians do generally make those holes on the land-side*, which without doubt gave rise to the suggestion.

In respect to the beaver dunging in their houses, as some persons assert, it is quite wrong as they always plunge into the water to do it. I am the better enabled to make this assertion, from having kept several of them till they became so domesticated as to answer to their name, and follow those to whom they were accustomed, in the same manner as a dog would do; and they were as much pleased at being fondled, as any animal I ever saw. I had a house built for them, and a small piece of water before the door, into which they always plunged when they wanted to ease nature; and their dung being of a light substance, immediately rises and floats on the surface, then separates and subsides to the bottom. When the Winter sets in so as to freeze the water solid, they still continue their custom of coming out of their house, and dunging and making water on the ice; and when the weather was so cold that I was obliged to take them into my house, they always went into a large tub of water which I set for that purpose: so that they made not the least dirt, though they were kept in my own sitting room, where they were the constant companions of the Indian women and children, and were so fond of their company, that when the Indians were absent for any considerable time, the beaver discovered great signs of uneasiness,

* The Northern Indians think that the sagacity of the beaver directs them to make that part of their house which fronts the North much thicker than any other part, with a view of defending themselves from the cold winds which generally blow from that quarter during the Winter; and for this reason the Northern Indians generally break open that side of the beaver-houses which exactly front the South.

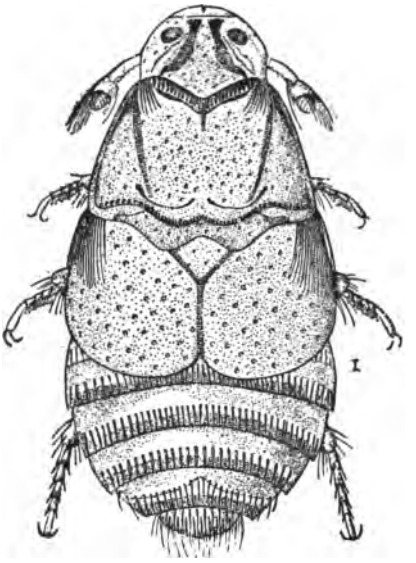
and on their return shewed equal marks of pleasure by fondling on them, crawling into their laps, laying on their backs, sitting erect like a squirrel, and behaving to them like children who see their parents but seldom. In general during the Winter they lived on the same food as the women did, and were remarkably fond of rice and plum-pudding: they would eat partridges and fresh venison very freely, but I never tried them with fish, though I have heard they will at times prey on them. In fact, there are few of the granivorous animals that may not be brought to be carnivorous. It is well known that our domestic poultry will eat animal food: thousands of geese that come to London market are fattened on tallow-craps; and our horses in Hudson's Bay would not only eat all kinds of animal food, but also drink freely of the wash or pot-liquor, intended for the hogs. And we are assured by the most authentic Authors, that in Iceland, not only black cattle, but also the sheep, are almost entirely fed on fish and fish-bones during the Winter season. Even in the Isles of Orkney, and that in Summer, the sheep attend the ebbing of the tide as regular as the Esquimaux curlew, and go down to the shore which the tide has left, to feed on the sea-weed. This, however, is through necessity, for even the famous Island of Pomona* will not afford them an existence above high water-mark.

With respect to the inferior, or slave-beaver, of which some Authors speak, it is, in my opinion, very difficult for those who are best acquainted with the œconomy of this animal to determine whether there are any that deserve that appellation or not. It sometimes happens, that a beaver is caught, which has but a very indifferent coat, and which has broad patches on the back, and shoulders almost wholly without hair. This is the only foundation for asserting that there is an inferior, or slave-beaver, among them. And when one of the above description is taken, it is perhaps too hastily inferred that the hair is worn off from those parts by carrying heavy loads: whereas it is most probable that it is caused by a disorder that attacks them somewhat similar to the mange; for were that

* This being the largest of the Orkney Islands, is called by the inhabitants the Main Land.

falling off of the hair occasioned by performing extra labour, it is natural to think that instances of it would be more frequent than they are; as it is rare to see one of them in the course of seven or ten years. I have seen a whole house of those animals that had nothing on the surface of their bodies but the fine soft down; all the long hairs having molted off. This and every other deviation from the general run is undoubtedly owing to some particular disorder.

APPENDIX—C.



PLATYPSYLLUS CASTORIS.

By C. V. Riley.

"A glance at the illustrations which I have prepared will show the prevailing characteristics of this interesting creature, its general ovoid and flattened form, and more particularly the flattened semi-circular head. Dorsally, we notice the rather prominent occiput fringed behind with short and broad depressed spines or teeth which form a sort of comb, the prothorax trapezoidal and but very slightly curved, with side margins strongly grooved. There is a very distinct scutellum, and the two elytra are rounded at the tip and without venation. Hind wings and eyes are both wanting. The abdomen shows five segments, each with a row of depressed bristles."

SYSTEMATIC RELATIONS OF PLATYPSYLLUS, AS DETERMINED BY THE LARVA.

By C. V. RILEY.

There is always a great deal of interest attaching to organisms which are unique in character and which systematists find difficulty in placing in any of their schemes of classification. A number of instances will occur to every working naturalist, and I need only refer to Limulus, and the extensive literature devoted during the past decade to the discussion of its true position, as a marked and well-known illustration. In Hexapods the common earwig and flea are familiar illustrations. These osculant or aberrant forms occur most among parasitic groups, as the Stylopidæ, Hippoboscidæ, Pulicidæ, Mallophaga, etc. Probably no Hexapod, however, has more interested entomologists than *Platypsyllus castoris* Ritsema, a parasite of the beaver.

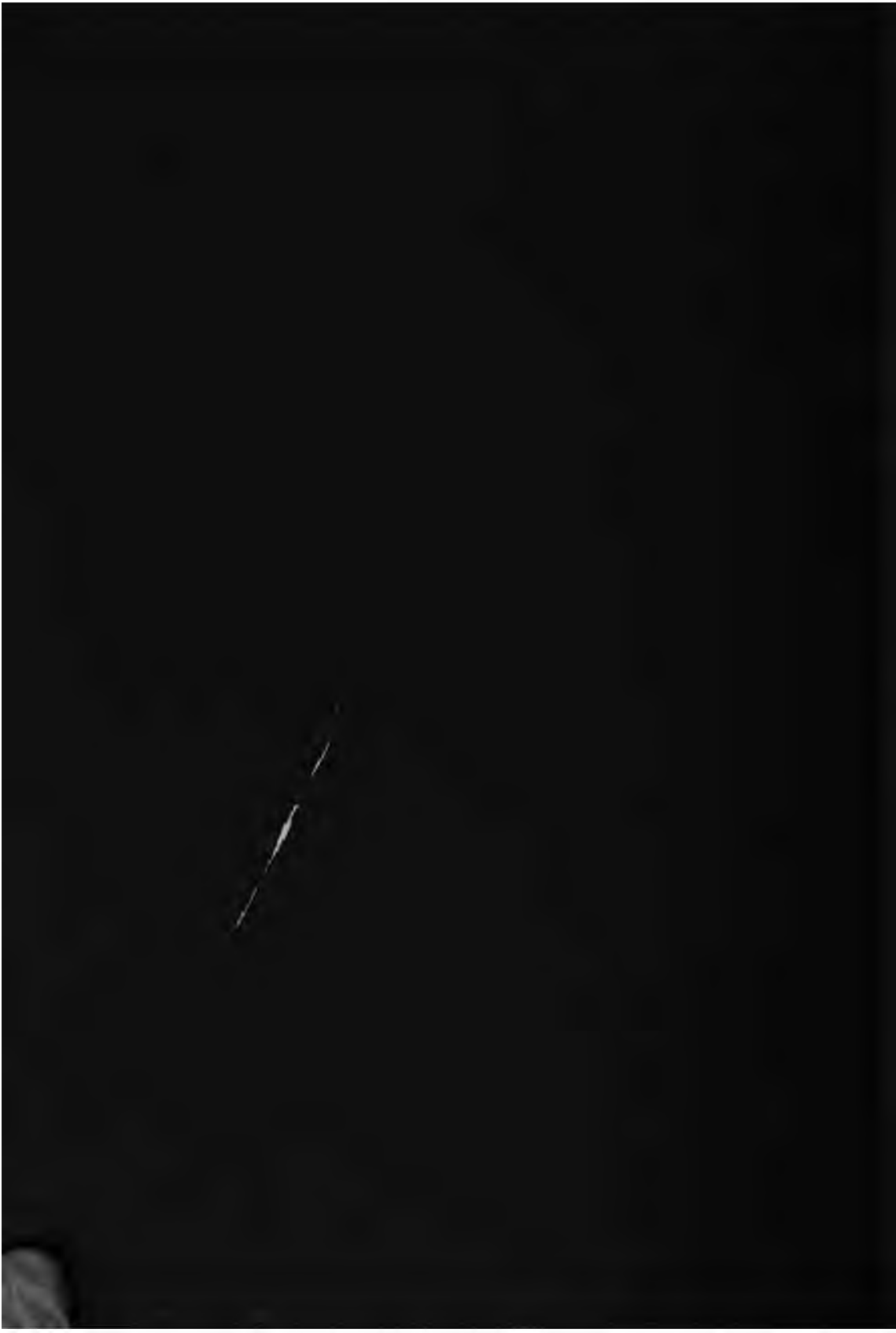
During a stay at West Point, Nebr., in October, 1886, I learned from one of my agents, Mr. Lawrence Bruner, that there was a beaver in a creek not far from that point, and I at once made arrangements for him to trap the beaver, and to look particularly for living specimens of Platypsyllus on the skin, and especially the earlier stages. He succeeded in capturing the beaver and sent me some fifteen specimens of the larva and also some imagos, but neither eggs nor pupæ were found. A glance at the larva satisfied me at once of its coleopterous nature; but as we have, waiting to be worked up and published, an *embarras de richesses entomologiques* in the collections of the National Museum, and as circumstances largely decide the precedence, I should probably not have called the attention to this larva for some time, had it not been that at the last monthly meeting of the Entomological Society of Washington, Dr. Horn, who was present, announced the finding, the present spring, by one of his correspondents, of this very larva, and exhib-

ited a specimen. Some points about it, and especially the position of the spiracles, being yet rather obscure in his mind, he requested me to examine my material, which I have thus been led to do.

As confirmatory of the affinities of Platypsyllus, as here proved, it may be mentioned that *Leptinus testaceus* Müll., the only species of its genus, is known to be parasitic on mice, as it has been found upon them in Philadelphia by Dr. John A. Ryder, and I have taken it in the nests of a common field mouse near Washington; but still more interesting is the fact that *Leptinillus validus* Horn (also the only species of its genus) is an associate parasite of Platypsyllus on the beaver, a number of both having been taken by one of my agents, Mr. A. Koebele, in San Francisco, from beaver skins brought from Alaska.

Platypsyllus, therefore, is a good Coleopteron, and in all the characters in which it so strongly approaches the Mallophaga it offers merely an illustration of modification due to food habit and environment. In this particular it is, however, of very great interest as one of the most striking illustrations we have of variation in similar lines through the influence of purely external or dynamical conditions, and where genetic connection and heredity play no part whatever. It is at the same time interesting because of its synthetic characteristics, being evidently an ancient type from which we get a very good idea of the connection in the past of some of the present well-defined orders of insects.

FINIS.



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